Green Gravel Pit Expansion Project

Environmental Assessment Worksheet

October 2023

Prepared for:

RJ Zavoral & Sons, Inc
Dan Zavoral
1706 Byland Rd SE
East Grand Forks, MN 56721-0435

Prepared by:

Stantec Consulting Services Inc.
One Carlson Parkway, Suite 100
Plymouth, Minnesota 55426

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Proposer: RJ Zavoral & Sons, Inc.
RGU: Clay County

October 2023

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December 2022 version

Environmental Assessment Worksheet

This most recent Environmental Assessment Worksheet (EAW) form and guidance documents are available at the Environmental Quality Board's website at**:** https://www.eqb.state.mn.us/ The EAW form provides information about a project that may have the potential for significant environmental effects. Guidance documents provide additional detail and links to resources for completing the EAW form.

Cumulative potential effects can either be addressed under each applicable EAW Item or can be addressed collectively under EAW Item 21.

Note to reviewers: Comments must be submitted to the RGU during the 30-day comment period following notice of the EAW in the EQB Monitor. Comments should address the accuracy and completeness of information, potential impacts that warrant further investigation and the need for an EIS.

1. **Project Title:** Green Gravel Pit Project (Project)

2. **Proposer:**

   Proposer : RJ Zavoral & Sons, Inc. (Zavoral)
   Contact person: Dan Zavoral
   Title: Secretary
   Address: PO Box 435
   City, State, ZIP: East Grand Forks, MN, 56721-0435
   Phone: (218) 773-0586
   Fax: Not Applicable
   Email: mailto:dan@rjzavoral.com

3. **Responsible Governmental Unit (RGU)**

   RGU Agency: Clay County
   Contact person: Matt Jacobson
   Title: Planning Director
   Address: 3510 12th Ave S.
   City, State, ZIP: Moorhead, MN 56560
   Phone: 218-299-7330
   Email: Matthew.jacobson@claycountymn.gov

4. Reason for EAW Preparation

Required:	Discretionary:
EIS Scoping	Citizen petition
X Mandatory EAW	RGU discretion
	Proposer initiated

If EAW or EIS is mandatory give EQB rule category subpart number(s) and name(s):

Minnesota Administrative Rules Chapter 4410.4300, subpart 12C: *For development of a facility for the extraction or mining of sand, gravel, stone, or other nonmetallic minerals, other than peat, which will excavate 20 or more acres of forested or other naturally vegetated land in a sensitive shoreland area or 40 acres of forested or other naturally vegetated land in a non-sensitive shoreland area, the local governmental unit is the RGU.*

5. Project Location

- County: Clay
- City/Township: Hagen Township
- PLS Location (¼, ¼, Section, Township, Range): primarily the Southern ½, NE¼, Section 21, T142N, R45W; limited NW ¼, NE¼, Section 21, T142N, R45W
- Watershed (81 major watershed scale): Wild Rice River
- GPS Coordinates: 47.102106 N, -96.391791 E
- Tax Parcel Number: 12.021.1700 and 12.021.1000

At a minimum attach each of the following to the EAW:

- County map showing the general location of the project.

Refer to Figures 1 and 2, Appendix A.

- U.S. Geological Survey 7.5 minute, 1:24,000 scale map indicating project boundaries (photocopy acceptable); and

Refer to Figure 1, Appendix A.

- Site plans showing all significant project and natural features. Pre-construction site plan and post-construction site plan.

Refer to Figure 3, Attachment A for the Project Area and Setbacks (site plan). As discussed in Item 6, below, the Project expansion is planned within and adjacent to an active non-metallic gravel mine.

6. Project Description

a. Provide the brief project summary to be published in the EQB Monitor, (approximately 50 words).

RJ Zavoral & Sons, Inc. proposes to expand the existing, approximately 36.4-acre, Green Gravel

Pit in Hagen Township, Clay County, Minnesota. The approximately 14.4-acre expansion Project would provide for mining, storage, and distribution of gravel aggregate.

b. Give a complete description of the proposed project and related new construction, including infrastructure needs. If the project is an expansion include a description of the existing facility. Emphasize: 1) construction, operation methods and features that will cause physical manipulation of the environment or will produce wastes, 2) modifications to existing equipment or industrial processes, 3) significant demolition, removal or remodeling of existing structures, and 4) timing and duration of construction activities

Existing Conditions/Facility

The RJ Zavoral & Sons, Inc. (Zavoral) property was purchased by Zavoral in December 2020. It is estimated that the prior property owner, Alexandria Gravel Products, mined the property between 2014 and the 2020.

Approximately 34,250 cubic yards of aggregate are mined per year with Zavoral estimating that they have mined approximately 102,750 cubic yards since acquiring the property. Zavoral estimates they have 10 to 20 years of resource remaining within the existing (36.4-acre) mine footprint.

The typical mining approach includes clearing and grubbing, as needed. Topsoil is then removed, stockpiled and stabilized. Any overburden encountered is removed and placed in an area of the pit where mining has already taken place. Raw material is then harvested above the water table with the use of excavators and haul trucks. Material below the water table is intended to be mined with a dredge system. The raw material is then processed with crushers and screens to obtain the desired material specifications. Certain activities are performed throughout the mine to vegetate erodible areas or stockpiles. The average depth of mining is 35 feet.

Equipment utilized within the mine include mobile equipment and pumps. Pumps are used to collect water from the onsite stormwater basins/pits. The water is used to wash the mined material. Wash water is returned to the onsite basins. The onsite basins have been designed to allow for natural settlement of sediment suspended in wash water.

The mobile Hot Mix Asphalt Plant would continue to operate on the property as it does under current conditions.

Proposed Project

Zavoral would open the expansion area in a phased manner. There are no structures within the expansion area requiring demolition. It is anticipated that the expansion area would extend the current 20-year mine life by approximately 3 to 6 years. Refer to Figure 3, Appendix A for the Project Area and Setbacks.

Zavoral would continue to remove gravel to a depth of approximately 35 feet below the original elevation, consistent with the current operations. Mobile equipment (e.g., aggregate washing) would be moved to the mining areas, when required. Extracted material not meeting the specifications for sale would be deposited within the Project Area consistent with the current operations management of this material.

No new buildings or structures are proposed as a part of the expansion.

Following the extraction of material from the approximately 14.4-acre expansion area, the area would be reclaimed per Clay County Interim Use Permit requirements.

1) *Construction, operation methods and features that will cause physical manipulation of the environment or will produce wastes.*
   As described above, there would be no new buildings/structures constructed as a part of the Project's expansion. The progression of mining would continue to occur as it has since Zavoral's operation began in the existing mining area in 2020.

2) *Modifications to existing equipment or industrial processes*
   There would be no modification to existing equipment or industrial processes.

3) *Significant demolition, removal or remodeling of existing structures*
   There would be no demolition, removal, or remodeling of existing structures with this Project.

4) *Timing and duration of construction activities*
   As described above, mining would progress in the 14.4-acre expansion area as resource is depleted in the active mining area.

Additionally, Zavoral would take the opportunity to restore areas disturbed by the prior owner and operator, including areas the prior owner operated within the setbacks described in Item 10.c.

a. Project magnitude

Table 1 summarizes the Project magnitude.

Table 1. Project Magnitude

Description	**Number**
Total Project Acreage	86
Existing gravel pit	36.4
Proposed expansion Project Area	14.4
Setbacks (Property Boundary, Residential*, Road, Stream) and Wetland Avoidance (Adjacent to Stream)	35.2
Linear Project length	NA
Number and type of residential units	NA
Residential building area (in square feet)	NA
Commercial building area (in square feet)	NA
Industrial building area (in square feet)	NA
Institutional building area (in square feet)	NA
Other uses – specify (in square feet)	NA
Structure height(s)	NA

*Zavoral has discussed with Clay County (June 2023) the need to access the stockpiles in the northeast portion of the Project Area. Once exhausted, the stockpile area would be reclaimed and the setback fully established.

b. Explain the project purpose; if the project will be carried out by a governmental unit, explain theneed for the project and identify its beneficiaries.

Project Purpose

Zavoral is a regional supplier of gravel, i.e., construction aggregate material. The purpose of the Project is to enable Zavoral to continue providing high quality aggregate material for road base and asphalt pavement applications in local markets and for use in the construction of roadways for state, county, township and local municipalities. The population in the Project region is growing at a 1.1 percent annual rate which far exceeds the national average of 0.1 percent[1]. To accommodate the growing population, increased building supplies such as construction aggregate are necessary to support infrastructure maintenance and development.

c. Are future stages of this development including development on any other property planned or likely to happen? **Yes X No**

If yes, briefly describe future stages, relationship to present project, timeline and plans for environmental review.

d. Is this project a subsequent stage of an earlier project? **X Yes No**

If yes, briefly describe the past development, timeline and any past environmental review.

Zavoral has been extracting material in this area since 2021 (acquisition occurred in December 2020). Prior to this expansion, environmental review under Minnesota Statute 4410 was not required.

7. Climate Adaptation and Resilience

a. Describe the climate trends in the general location of the project (see guidance: Climate Adaptation and Resilience) and how climate change is anticipated to affect that location duringthe life of the project.

In general, Minnesota is anticipated to experience an increase in temperature, precipitation, and more frequent extreme precipitation events resulting from climate change. In Minnesota, annual average temperatures have risen three degrees over the past century and up to three degrees in the northern part of the state, where the Project is located. The highest average temperature increases have occurred during the winter. Since 1895, temperatures during the winter have increased at a rate two to three times higher than during the summer. In particular, winter warming rates have risen more sharply in recent decades. [2] Current climate warming trends, most notably during the winter, are anticipated to continue.[3]

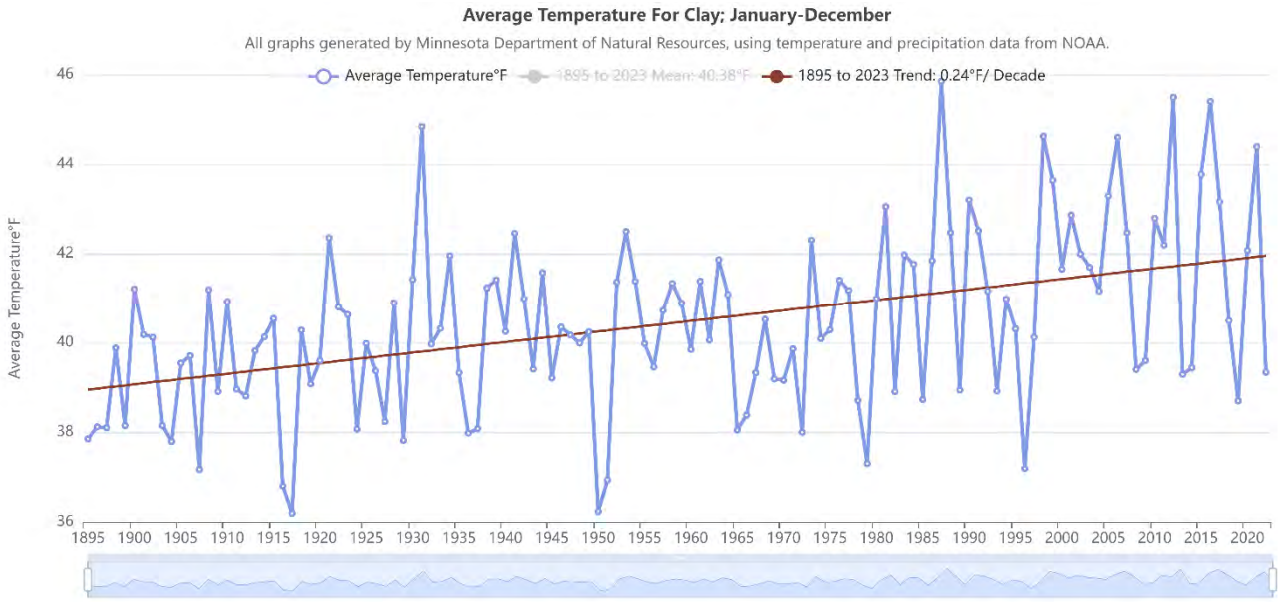
Heavy rain events have become more frequent in Minnesota and more intense. From 1973 to 2021, Minnesota experienced 16 mega-rain events[4] with a notable increase since 2000. Of these 16 events, three occurred in the 1970s, one in the 1980s, one in the 1990s, six mega-rain events occurred in the 2000s, four in the 2010s, and one in 2020. Thus, in the past 21 years (2000 to 2020), almost two times as many mega

[1] MDNR Climate Trends. https://www.dnr.state.mn.us/climate/climate_change_info/climate-trends.html
[2] MDNR. Climate Trends. https://www.dnr.state.mn.us/climate/climate_change_info/climate-trends.html
[3] MnDOT. Minnesota Go Climate Change Report. 2021. https://www.minnesotago.org/trends/climate-change
[4] Mega-rain events are defined as events in which six inches of rain covers more than 1,000 square miles and the core of the event tops eight inches.

rain events occurred compared to the prior 27 years (1973 to 1999).[5]

Climate trends for Clay County parallel the overall statewide trends, indicating Minnesota's climate is becoming warmer and wetter. Exhibits 1 and 2 illustrate historical average annual temperature and precipitation trends from 1895 to 2023. During this time period, the County experienced an average annual temperature increase of 0.24 degrees Fahrenheit (°F) per decade and annual precipitation increase of 0.23 inches per decade.

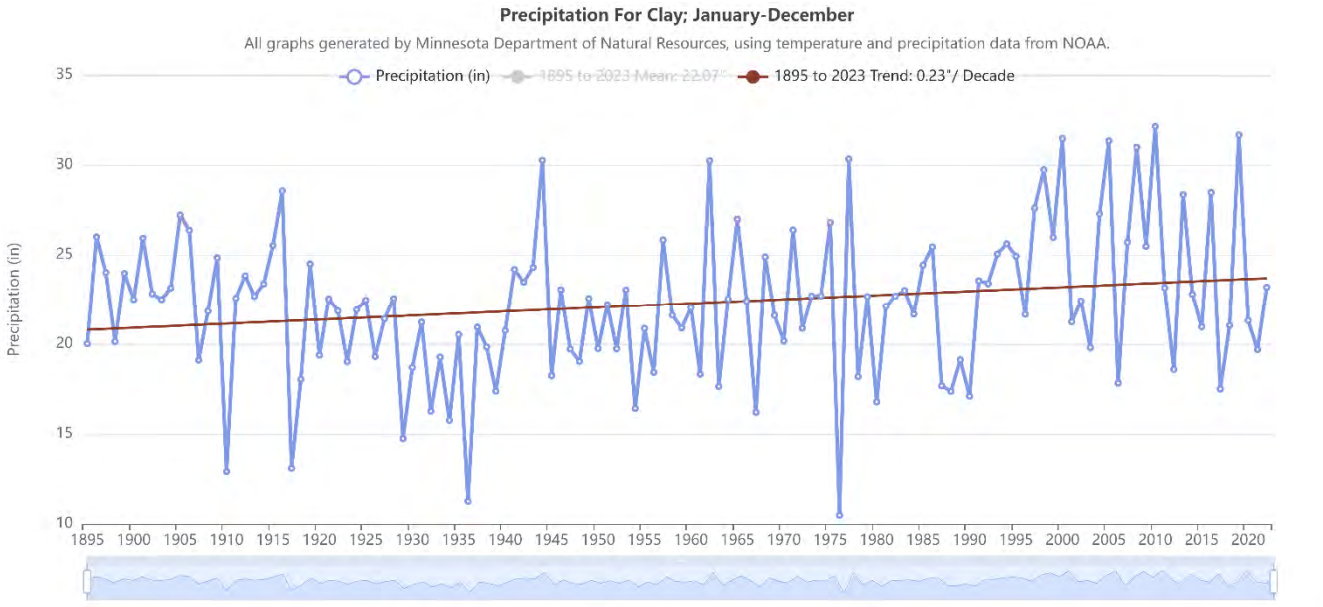
Exhibit 1. Historical Annual Average Temperature in Clay County (1895 – 2023)



Source: Minnesota Department of Natural Resources.
https://arcgis.dnr.state.mn.us/ewr/climateexplorer/main/historical

[5] MDNR. Historic Mega-Rain Events in Minnesota. https://www.dnr.state.mn.us/climate/summaries_and_publications/mega_rain_events.html

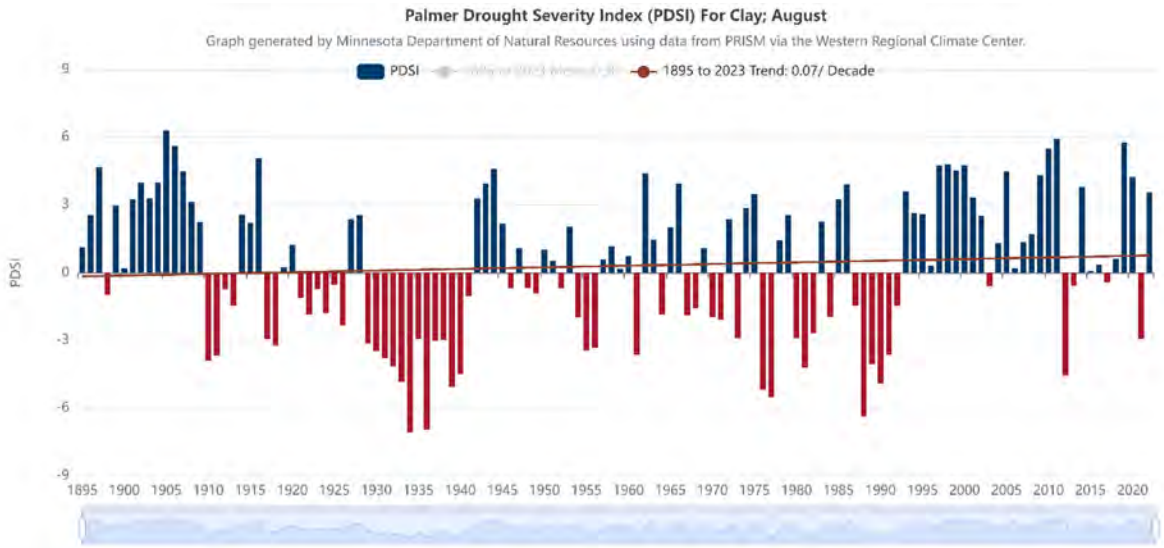
Exhibit 2. Historical Annual Average Precipitation in Clay County (1895 – 2023)



Source: Minnesota Department of Natural Resources.
https://arcgis.dnr.state.mn.us/ewr/climateexplorer/main/historical

The Palmer Drought Severity Index (PDSI) utilizes temperature and precipitation data to estimate relative soil moisture conditions and serve as an indicator of long-term drought conditions. The index ranges from -5 to +5 indicating dry and wet conditions, respectively. PDSI values are reported on a monthly basis. Exhibit 3 shows historic PDSI values for the month of August from 1895 to 2023 for Clay County, which indicates an increase of 0.07 per decade. Generally, the PSDI historical data indicates that the region is experiencing a wetter climate.

Exhibit 3. Historical PDSI Values for Clay County (1895 – 2023)

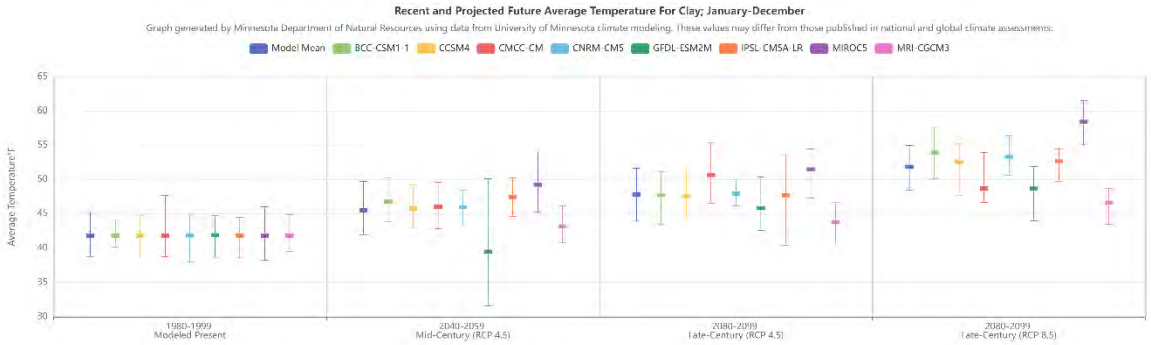


Source: Minnesota Department of Natural Resources.
https://arcgis.dnr.state.mn.us/ewr/climateexplorer/main/historical

Projected climate trends indicate that temperatures within the County will continue to increase. Exhibit 4 illustrates projected temperatures for the County. Several climate models are shown in the projected temperature analysis. The model mean, shown in blue, illustrates the average of all models included in the analysis. Exhibit 4 shows the modeled present condition, mid-century (2040-2059) at Representative Concentration Pathway (RCP) 4.5, late-century (2080-2099) at RCP 4.5, and late-century (2080-2099) at RCP 8.5. RCP is a greenhouse gas concentration scenario used by the Intergovernmental Panel on Climate Change in the fifth assessment report. RCP 4.5 is an intermediate scenario in which emissions decline after peaking around 2040 and RCP 8.5 represents a worst-case scenario in which emissions continue rising through the 21st century.

Under the RCP 4.5 scenario, the annual temperature is anticipated to increase within the County from a modeled present mean of 41.85°F (1980-1999) to a mid-century (2040-2059) model mean of 45.49°F and a late-century (2080-2099) model mean of 47.86°F. Under the RCP 8.5 worst-case scenario, the County would experience a late-century (2080-2099) model mean temperature of 51.86°F.

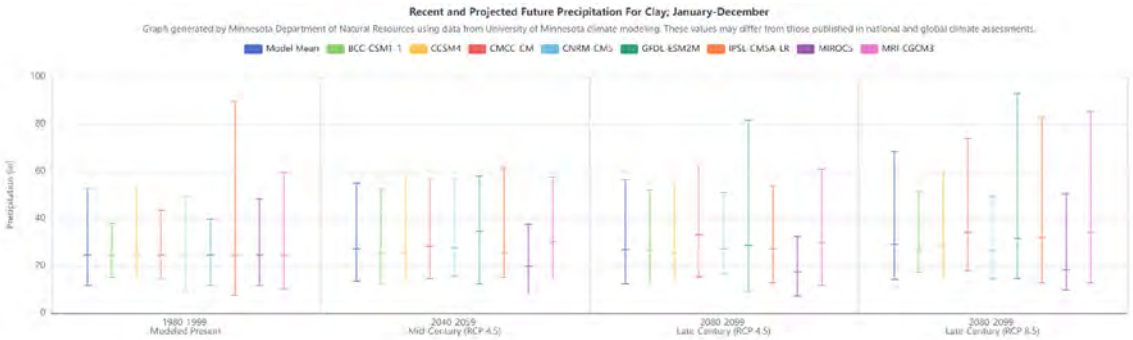
Exhibit 4. Projected Temperatures in Clay County



Source: Source: Minnesota Department of Natural Resources. Minnesota Climate Explorer (state.mn.us). Definitions of the models included in this analysis can be found at Climate Explorer Metadata | Minnesota DNR (state.mn.us).

Exhibit 5 presents projected average annual precipitation for Clay County. Under the RCP 4.5 scenario, the annual precipitation is anticipated to increase within the County from a modeled present mean of 24.56 inches (1980-1999) to a mid-century (2040-2059) model mean of 27.03 inches and a late-century (2080-2099) model mean of 26.82 inches. Under the RCP 8.5 worst-case scenario, the County would experience a late-century (2080-2099) model mean precipitation of 28.91 inches. In comparison to the modeled present mean (1980-1999), the late century (2080-2099) modeled mean annual precipitation would increase by approximately 2.3 percent under the RCP 4.5 scenario and increase by approximately 4.4 percent under the RCP 8.5 scenario.

Exhibit 5. Projected Precipitation in Clay County



Source: Minnesota Department of Natural Resources. Minnesota Climate Explorer (state.mn.us). Definitions of the models included in this analysis can be found at Climate Explorer Metadata | Minnesota DNR (state.mn.us).

b. For each Resource Category in the table below: Describe how the project's proposed activitiesand how the project's design will interact with those climate trends. Describe proposed adaptations to address the project effects identified.

Table 2 summarizes climate considerations related to the Project and adaptation considerations.

Table 2. Climate Considerations and Adaptations

Resource Category	Climate Considerations	Project Information	Adaptations
Project Design	Increased heavy rainfall and flooding.	Expansion of the gravel pit creates a larger water-catchment basin which may be susceptible to unregulated discharge into adjacent waterbodies during mega-rain events.	The Project would include construction of stormwater Best Management Practices (BMPs), that provide resiliency to mega-rain events and prevent unplanned discharge of water into sensitive areas. The BMPs would assist in mitigating stormwater runoff rates, volumes, and pollutant loading. Additionally, the Project would adhere to the stream setback (100-foot buffer) along the unnamed stream ("Stream 3" in Figure 8, Appendix A) on the western half of the Project Area. Wetland impacts have been minimized (less than 0.5-acre of impact). There would be impacts to trees within the Project Area but overall, the Project Area is located within an area with minimal tree cover.
Land Use	Heavier rainfall expected to increase risk of localized flooding.	The Project is not located within a FEMA defined floodplain or floodway.	The Project would include construction of stormwater BMPs, designed to meet or exceed local and Minnesota Pollution Control Agency requirements. Additionally, the Project would not result in the addition of impervious surface area, that can contribute to increased stormwater flow rates during heavy rains.
Water Resources	Addressed in Item 12		
Contamination/ Hazardous Materials/ Wastes	Protection of water resources and soil from contamination.	Mobile aggregate washing units would be moved around the Project and there would also be vehicle circulation from time to time.	Fueling would occur in the Project Area away from the active mining pit, wetlands and the unnamed stream ("Stream 3" in Figure 8, Appendix A). There would be no above or below ground

Resource Category	Climate Considerations	Project Information	Adaptations
			fuel storage tanks. Fuel is stored in a fuel truck or delivered by a commercial vendor daily or as needed. Hazardous materials would not be stored within the mine operation, nor would wastes be created within the mine operation.
No Fish, wildlife, plant communities, andsensitive ecological resources (rare features)	Addressed in Item 14		

8. Cover Types

Estimate the acreage of the site with each of the following cover types before and after development. Refer to Figure 3 Land Cover, Appendix A.

Table 3. Cover Types

Cover Types[6]	Before(acres)	After (acres)
Wetlands and shallow lakes (<2 meters deep) *(emergent herbaceous and woody wetlands)*	4.3	3.8
Deep lakes (>2 meters deep) *(open water)*	10.2	46.5[7]
Wooded/forest *(deciduous forest)*	0.4	0.2
Rivers/streams[8]	0	0
Brush/grassland *(hay/pasture)*	25.2	17.2
Cropland *(cultivated crops)*	16.3	14.3
Livestock rangeland/pastureland	0	0
Lawn/landscaping	0	0
Green infrastructure TOTAL (from table below)	0	0
Impervious surface[9]	16.8	1.0

[6] The National Land Cover Database (NLCD) was accessed July 13, 2023. The NLCD terminology varies from the EQB EAW form and therefore, NLCD terms are provided in (italics) following the EQB EAW form terms.
[7] Deep lakes or the open water that will result from mining has been approximated.
[8] NLCD identifies the unnamed stream ("Stream 3" in Figure 8, Appendix A) as emergent herbaceous wetlands.
[9] Per Clay County (RGU) guidance, impervious has been estimated to include gravel roads, pads, etc.

Stormwater Pond (wet sedimentation basin)	0	0
Mining/Extraction (Aggregate)[10]	12.8	3.0
Developed *(developed open space and low intensity)*	0	0
TOTAL	86	86

Table 4. Green Infrastructure

Green Infrastructure*	**Before (acreage)**	**After (acreage)**
Constructed infiltration systems (infiltration basins/infiltration trenches/ rainwater gardens/bioretention areas without underdrains/swales with impermeable check dams)	0	0
Constructed tree trenches and tree boxes	0	0
Constructed wetlands	0	0
Constructed green roofs	0	0
Constructed permeable pavements	0	0
Other (describe) Landfill-based geothermal system	0	0
TOTAL*	0	0

Table 5. Tree Canopy

Trees	**Percent**	**Number**
Percent tree canopy removed or number of mature trees removed during development	50 of a very minor amount (see Table 3)	
Number of new trees planted	0	0

9. Permits and Approvals Required

List all known local, state and federal permits, approvals, certifications and financial assistance for the project. Include modifications of any existing permits, governmental review of plans and all direct and indirect forms of public financial assistance including bond guarantees, Tax Increment Financing and infrastructure. All of these final decisions are prohibited until all appropriate environmental review has been completed. See Minnesota Rules, Chapter 4410.3100.

The Project involves the expansion of an existing gravel pit that currently operates in accordance with local, county and state permitting regulations. Current permits pertaining to the gravel pit are listed in Table 6 along with the issuing body, permit type and status. Status of permits is noted with a superscript and footnote.

[10] The Before Mining/Extraction acreage is less than the 36.4 acres referred to as the existing mining area due to the occurrence of open water in the existing extraction areas and also the independent calculation of impervious (gravel roads, pads, etc.). Open water is quantified separately.

Expansion of the existing gravel pit may require additional permitting to comply with local, county and state regulations. The additional permits are listed in Table 6.

Table 6. Permits and Approvals

Unit of Government	Type of Application	Status
State		
Minnesota Pollution Control Agency (MPCA)	• Stormwater Pollution Prevention Plan (SWPPP) Update	• Obtained
Minnesota Department of Natural Resources (MDNR)	• Water Appropriation Permit • NHIS Concurrence	• Obtained[11] • To be obtained per County request.
County		
Clay County	• Interim Use Permit (Mining) Renewal • Interim Use Permit (Asphalt) Renewal (current through 2025) • EAW/EIS Need Decision	• To coincide with completion of the EAW • To coincide with completion of the EAW • EAW prepared
Local		
Hagen Township	• Interim Use Permit (Mining) • Interim Use Permit (Asphalt)	• Obtained[12] • Obtained

Cumulative potential effects may be considered and addressed in response to individual EAW Item Nos. 10-20, or the RGU can address all cumulative potential effects in response to EAW Item No.22. If addressing cumulative effect under individual items, make sure to include information requested in EAW Item No. 21.

10. Land use

a. Describe:

i. Existing land use of the site as well as areas adjacent to and near the site, including parks and open space, cemeteries, trails, prime or unique farmlands.

Existing Land Use

Clay County's 2045 Comprehensive Plan (hereinafter Comp Plan) identifies the land use in the Project Area as Industrial-Extraction, with Mixed Use and Residential Farmland uses to the east. The Comp Plan also identifies the Project Area as within an Aggregate Potential area and the Aggregate Resources Overlay District.

[11] Existing permit will be updated with new parameters based on the Project scope.
[12] Permit is obtained and valid.

The Project is located west of County 27/200th Street. Both north and south of the Project, there are rural residential homes. On the east side of County Road 27/200th Street, across from the current operations driveway, is another rural residential home. Land use in the immediate vicinity of the Project is otherwise identified as Agricultural land use. Further to the west and southwest, there are other aggregate mining/extraction operations.

Parks and Trails

The Felton Prairie Scientific and Natural Area (SNA) is approximately 0.75-mile west of the Project Area. SNAs are state managed public lands open to recreational activities that do not disturb natural conditions. No other parks, trails or recreation areas are present within or in the vicinity of the Project Area. Figure 5, Appendix A, identifies trail facilities and park land in the vicinity of the Project Area.

Prime or Unique Farmlands

According to the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey SSURGO database[13], there are four soil types within the expansion area: Ulen fine sandy loam, Arveson clay loam, Lohnes sandy loam, and Lamoure silt loam. Table 7 below and Figure 6, Appendix A detail the prime and unique farmlands within the expansion area broken down by soil type.

Table 7. Prime and Unique Farmlands in the Expansion Area

Farmland Type	Soil Type	Approximate Acreage	Approx. Percent of Expansion Area
Farmland of statewide importance	Ulen fine sandy loam	3.7	26.0%
Prime farmland if drained	Arveson clay loam	4.8	33.2%
Not prime farmland	Lohnes sandy loam	5.7	40.8%
	Lamoure silt loam	0.2	
Total		14.4	100

Source: 2022 USDA-NRCS SSURGO Data

The expansion area consists of approximately 3.7 acres (26 percent) of farmland of statewide importance, 4.8 acres (33.2 percent) of prime farmland if drained, and 5.9 acres (40.8 percent) of land that is not prime farmland.

The Project Area also consists of the existing mine area that covers approximately 36.4 acres. Historical soils consisted of Lohnes sandy loam, Lohnes coarse sandy loam, Ulen fine sandy loam, Hecla loamy fine sand, and Arveson clay loam. Table 8 and Figure 6, Appendix A detail the prime and unique farmlands that were present within the existing mine area broken down by soil type.

[13] USDA NRCS 2022. Soil Survey Geographic (SSURGO) Database. Available online at http://websoilsurvey.nrcs.usda.gov/ or http://datagateway.nrcs.usda.gov/. Accessed February 2023.

Table 8. Historical Prime and Unique Farmlands in the Existing Mine Area

Farmland Type	Soil Type	Approximate Acreage	Approx. Percent of Existing Mine Area
Not prime farmland	Lohnes sandy loam	15.6	81.0%
	Lohnes coarse sandy loam	13.6	
	Hecla loamy fine sand	0.3	
Farmland of statewide importance	Ulen fine sandy loam	6.8	18.7%
Prime farmland if drained	Arveson clay loam	0.1	0.3%
Total		36.4	100

Source: 2022 USDA-NRCS SSURGO Data

The existing mine area consisted of approximately 29.4 acres (81.0 percent) of non-prime farmlands, 6.8 acres (18.7 percent) of farmland of statewide importance, and 0.1 acres (0.3 percent) of prime farmland if drained (Table 8; Figure 6, Appendix A). As a result of active mining, no prime or unique farmlands are currently present within this area.

Cemeteries

There are no cemeteries within or near the Project Area.

ii. Plans. Describe planned land use as identified in comprehensive plan (if available) and any other applicable plan for land use, water, or resources management by a local, regional, state, or federal agency.

As denoted in Chapter 4 Land Use of the Clay County 2045 Comprehensive Plan, the availability of aggregate resources in Clay County is critical to building and maintaining the region's infrastructure and controlling the cost of projects. This is reflected with the following designations in the Comp Plan: Aggregate Potential area and the Aggregate Resources Overlay District.

The Comp Plan, Chapter 6 Goals and Objectives, outlines the following for fostering "a balanced approach to aggregate resource extraction that is compatible with the natural resources and the rural character of Clay County."

- Adequate buffering and landscaping for new mining operations when adjacent to existing residential areas as well as when existing operations expand or is substantially modified and would negatively impact existing land uses in the surrounding area.

- Avoid or mitigate against impacts to groundwater, surface water, native prairie, woodlands, and wetlands for new or expanding mining operations.

- The County requires phased end-use reclamation plans as a condition for a gravel-mining permit so that areas are reclaimed as they are done being mined is required.

- Consider cumulative impacts of existing nearby mining operations for new or expanding operations on the environment, agricultural lands, residential areas, and transportation infrastructure.

  Comprehensive Plan for Wild Rice Watershed District (2017)
  The watershed district does not have a specific management plan outlined in the Wild Rice Watershed Comprehensive Plan[14] for the Project Area or the surrounding properties; however, general management of natural drainageways and wetlands and the abutting lands carried out in such a manner so as to reduce their deterioration and to maximize their value for the general welfare of the
  Watershed District.

iii. Zoning, including special districts or overlays such as shoreland, floodplain, wild and scenic rivers, critical area, agricultural preserves, etc.

The Project Area is zoned Ag General. The county allows for aggregate mining in this Aggregate Resource Overlay District, through the Interim Use Permit. Additionally, the Project is located in an area zoned for Resource Protection – Aggregate Overlay. The Project Area is not located within any other special district or overlay area.

iv. If any critical facilities (i.e. facilities necessary for public health and safety, those storing hazardous materials, or those with housing occupants who may be insufficiently mobile) are proposed in floodplain areas and other areas identified as at risk for localized flooding, describe the risk potential considering changing precipitation and event intensity.

No critical facilities are proposed.

b. Discuss the project's compatibility with nearby land uses, zoning, and plans listed in Item 10a above, concentrating on implications for environmental effects.

The Project would not introduce a new land use to the Project Area. The Project would be an expansion of an existing aggregate mining operation. The rural residence located along County 27/200th Street has coexisted with aggregate mining operations since approximately 2014. The remainder of the surrounding area is agricultural and has remained in this use without any recognized compatibility issues.

The Project is compatible with the county's comprehensive plan, specifically the county's identification of the Project Area as an Aggregate Potential area and the Aggregate Resources Overlay District. The county has a process of approval in place, the Interim Use Permit, to approve development of aggregate mining operations within the areas zones as Ag General. Additionally, as referenced in Item 10.a.ii., the county has set out goals and objectives for fostering a balanced approach to aggregate resource extraction that is compatible with the natural resources and the rural character of Clay County.

c. Identify measures incorporated into the proposed project to mitigate any potential incompatibility as discussed in Item 10b above and any risk potential.

[14] Wild Rice Watershed District. 2020. One Watershed One Plan Historic Mega-Rain Events in Minnesota. https://www.wildricewatershed.org/onewatershedoneplan/approved-documents/

There are four types of setbacks associated with the Project: 1) Residential setback of 500 feet (as described in Item 6b Proposed Project, Zavoral would be accessing stockpiles in the northeast portion of the Project Area, within the residential setback, until these are depleted); 2) Roadway setback of 300 feet; 3) Stream setback of 100 feet; and, 4) Property setback of 100 feet.

11. Geology, Soils and Topography/Landforms

a. Geology – Describe the geology underlying the project area and identify and map any susceptiblegeologic features such as sinkholes, shallow limestone formations, unconfined/shallow aquifers, or karst conditions. Discuss any limitations of these features for the project and any effects the project could have on these features. Identify any project designs or mitigation measures to address effects to geologic features.

The surface geology across the proposed gravel pit expansion area has been mapped by the Minnesota Geological Survey's Geologic Atlas of Clay County (Hobbs and Gowan 2014)[15] to be within the glacial Lake Agassiz beach ridge region. The Geologic Atlas (Hobbs and Gowan 2014)[16] describes the general geology in a cross section of the gravel pit expansion area as Shoreline Sediments and Lake Sand associated with Glacial Lake Agassiz of the Wisconsinan Episode. The Shoreline Sediments and Lake Sand deposits appear to be underlain by Wisconsinan Episode glacial till associated with the Red Lake Falls Formation and Goose River Formation and Undifferentiated Quaternary deposits comprised of till and bedded clay, silt, sand, and gravel. The Shoreline Sediments are generally described as beach and shallow water sediment with sand and gravel derived from waves eroding the shoreline and windblown sand. This group is comprised of well to moderately well sorted gravelly sand and sandy gravel with some beds of non-gravelly sand containing cobbles and boulders. The deposits are less than five meters (15 feet) thick and overlain with a 0.3-1 meter (1 to 3 feet) thick layer of unbedded eolian fine-grained sand and silt typically flat to shallowly dipping creating a network of surficial and buried sand and gravel aquifers. Beach ridges and wave-cut scarps are common in the area. The Lake Sand sediments are referenced as shallow water glacial Lake Agassiz sand described as very fine to coarse-grained calcareous sand with silt in places. These sediments were derived from shallow-water sediments of Glacial Lake Agassiz, meltwater from the ancestral Buffalo River, and from backwash of waves eroding the shore.

Clay County is situated atop underlying Precambrian crystalline bedrock and sedimentary rocks that falls within the Wawa Sub province of the Superior Province. The complex is comprised of sedimentary and volcanic rocks cut by intrusions of granite, granodiorite, diorite, and gabbro. The bedrock near the Project Area is characterized as mafic metavolcanic rock and includes basalt, minor volcaniclastic and hypabyssal intrusive rocks. Iron formations consisting of iron-rich slate and chert may also be present. (Chandler et al. 2014)[17]. Depth to bedrock is between 250 and 300 feet below the grade as a result of a blanket of glacial sediment (Setterholm 2014)[18].

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[15] Hobbs, Howard C. and Gowan, Angela S. 2014. C-29 Geologic Atlas of Clay County, Minnesota [Part A]. Plate 3 – Surficial Geology. Minnesota Geological Survey. Retrieved from the University of Minnesota Digital Conservancy. https://conservancy.umn.edu/handle/11299/163570.
[16] Hobbs, Howard C. and Gowan, Angela S. 2014. C-29 Geologic Atlas of Clay County, Minnesota [Part A]. Plate 4 – Quaternary Stratigraphy. Minnesota Geological Survey. Retrieved from the University of Minnesota Digital Conservancy. https://conservancy.umn.edu/handle/11299/163570.
[17] Chandler, V.W., Jirsa, Mark A., and Setterholm, Dale R. 2014. C-29 Geologic Atlas of Clay County, Minnesota [Part A]. Plate 2 – Bedrock Geology. Minnesota Geological Survey. Retrieved from the University of Minnesota Digital Conservancy. https://conservancy.umn.edu/handle/11299/163570.
[18] Setterholm, Dale R. 2014. C-29 Geologic Atlas of Clay County, Minnesota [Part A]. Plate 5 – Bedrock Topography, Depth to Bedrock, and Sand

According to the Minnesota Department of Health (MDH) Minnesota Well Index (MWI), there are no wells within the Project Area. (Note: in Item 12.a.ii., supplemental well information provided by Zavoral.) Based on the local well logs presented in the MWI the underlying geology is depicted as interbedded sand, sand, gravel, and clay units. Three water well logs (Unique Well 723229 northwest, 163152 southwest, and 576372 northeast) indicate the presence of sand and gravel units at shallow depths similar to the mine property. Additionally, according to the Minnesota Department of Natural Resources (MDNR) Karst Feature Inventory (2023a)[19], there are no karst or sinkhole features within the Project Area or within the vicinity of the Project Area.

b. Soils and topography – Describe the soils on the site, giving NRCS (SCS) classifications and descriptions, including limitations of soils. Describe topography, any special site conditions relating to erosion potential, soil stability or other soils limitations, such as steep slopes, highly permeable soils. Provide estimated volume and acreage of soil excavation and/or grading. Discuss impacts from project activities (distinguish between construction and operational activities) related to soils and topography. Identify measures during and after project construction to address soil limitations including stabilization, soil corrections or other measures. Erosion/sedimentation control related to stormwater runoff should be addressed inresponse to Item 12.b.ii.

Tables 9 and 10 detail the soil types within the expansion area and the existing mine area, respectively, using the USDA NRCS Web Soil Survey SSURGO Database[20].

Table 9. Mapped Soil Types within the Expansion Area

Map Unit Symbol	Map Unit Name	Hydrologic Group	Wind Erodibility Group	Water Erodibility Factor (K*f*)	Acres	% of Expansion Area
I674A	Lohnes sandy loam, 0 to 2% slopes	A	3	0.04	5.7	39. 5%
I716A	Arveson clay loam, 0 to 1% slopes	B/D	4L	0.16	4.8	33.2%
I356A	Ulen fine sandy loam, 0 to 2% slopes	B	3	0.09	3.7	26.0%
I795A	Lamoure silt loam, 0 to 2% slopes, frequently flooded	B/D	4L	0.36	0.2	1.3%
				TOTAL	**14.4**	**100%**

Source: 2022 USDA-NRCS SSURGO Data

Distribution Model. Minnesota Geological Survey. Retrieved from the University of Minnesota Digital Conservancy. https://conservancy.umn.edu/handle/11299/163570.

[19] MDNR. 2023a. Karst Feature Inventory. Available at: https://arcgis.dnr.state.mn.us/portal/apps/webappviewer/index.html?id=9df792d8f86546f2aafc98b3e31adb62. Accessed February 2023.

[20] USDA NRCS. 2022. Soil Survey Geographic (SSURGO) Database. Available online at http://websoilsurvey.nrcs.usda.gov/ or http://datagateway.nrcs.usda.gov/. Accessed February 2023.

Table 10. Historic Mapped Soil Types within the Existing Mine Area*

Map unit Symbol	Map unit Name	Hydrologic Group	Wind Erodibility Group	Water Erodibility Factor (Kf)	Acres	% of Existing Mine Area
I673B	Lohnes coarse sandy loam, 2 to 6 percent slopes	A	3	0.04	13.5	37.2%
I674A	Lohnes sandy loam, 0 to 2 percent slopes	A	3	0.04	10.2	28.0%
I356A	Ulen fine sandy loam, 0 to 2 percent slopes	B	3	0.09	6.8	18.7%
I674A	Lohnes sandy loam, 0 to 2 percent slopes	A	3	0.04	5.4	14.8%
I15A	Hecla loamy fine sand, 0 to 2 percent slopes	A	2	0.07	0.3	0.8%
I716A	Arveson clay loam, 0 to 1 percent slopes	B/D	4L	0.16	0.1	0.3%
I716A	Arveson clay loam, 0 to 1 percent slopes	B/D	4L	0.16	0.0	0.0%
				TOTAL	**36.4**	**100%**

Source: 2022 USDA-NRCS SSURGO Data
*Much of these soils are no longer present due to mining activity

The hydrologic soil groups are:

- **Group A:** Soils having low runoff potential when thoroughly wet. Water is transmitted freely through the soil. Group A soils typically have less than 10 percent clay and more than 90 percent sand or gravel and have gravel or sand textures.
- **Group B:** Soils having moderately low runoff potential when thoroughly wet. Water transmission through the soil is unimpeded. Group B soils typically have between 10 percent and 20 percent clay and 50 percent to 90 percent sand and typically have loamy sand or sandy loam textures.
- **Group C:** Soils having moderately high runoff potential when thoroughly wet. Water transmission through the soil is somewhat restricted. Group C soils typically have between 20 percent and 40 percent clay and less than 50 percent sand and typically have loam, silt loam, sandy clay loam, clay loam, and silty clay loam textures.
- **Group D:** Soils having high runoff potential when thoroughly wet. Water movement through the soil is restricted or very restricted. Group D soils typically have greater than 40 percent clay, less than 50 percent sand, and have clayey textures. All soils with a depth to a water impermeable layer less than 20 inches and all soils with a seasonally high-water table within 24 inches of the surface are in this group.
- **Dual Groups**: Dual Group designations (A/D, B/D, or C/D) are used to indicate wet soils that belong to Group D due to a high-water table but would meet the drainage or textural criteria for Group A, B, or C if artificially drained. Dual Group soils should be treated as Group D soils in the absence of effective artificial drainage.

The soil erodibility factors are:

- **Wind Erodibility Group**: Soils are assigned a Wind Erodibility Group (WEG) rating based on their inherent vulnerability to soil particle detachment from wind forces. Values range from 1 (most erodible) to 8 (least erodible).
- **Water Erodibility Factor (K*f*)**: The Soil Erodibility Factor (K*f* or "rock free") is a quantitative description of the inherent erodibility of a particular soil. It provides a measurement of soil particles' susceptibility to detachment from rain drops or surface runoff. Values range from 0.02 (least erodible) to 0.69 (most erodible). Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water. Factor K does not apply to organic horizons and is not reported for those layers.

The expansion area is gently sloping to the east. According to the MDNR MnTOPO map, the expansion area ranges from approximately 1,013 feet above mean sea level (amsl) in the west to approximately 1,026 feet amsl in the east[21].

Operations within the expansion area are anticipated to be similar as those conducted in the existing mine area. The purpose of the project is mine soil from the expansion area. Concerns regarding soil stability, soil erosion, runoff, and infiltration rates, and steep slopes are limited because all soils within the proposed expansion area will be subject to extraction and sale to end users. In their natural condition, mapped soils within the proposed expansion area are moderately or significantly susceptible to wind erosion and minimally susceptible to water erosion.

All 14.4 acres are potentially subject to extraction to a depth of approximately 35 feet but would be dependent on the depth of marketable aggregate material identified during the mining process. Based on this, the estimated volume of potential excavation is approximately 813,000 cubic yards.

During operations, the site will be subject to state and local stormwater permitting, including erosion and sediment control. These items are discussed in the following section. The entire operation is subject to a reclamation plan per Clay County rules that dictates site stabilization and restoration requirements.

NOTE: For silica sand projects, the EAW must include a hydrogeologic investigation assessing the potential groundwater and surface water effects and geologic conditions that could create an increased risk of potentially significant effects on groundwater and surface water. Descriptions of water resources and potential effects from the project in EAW Item 12 must be consistent with the geology, soils and topography/landforms and potential effects described in EAW Item 11.

12. Water Resources

a. Describe surface water and groundwater features on or near the site in a.i. and a.ii. below.

i. Surface water - lakes, streams, wetlands, intermittent channels, and county/judicial ditches. Include any special designations such as public waters, shoreland classification

[21] MDNR MnTOPO. Available at: http://arcgis.dnr.state.mn.us/maps/mntopo/. Accessed February 2023.

and floodway/floodplain, trout stream/lake, wildlife lakes, migratory waterfowl feeding/resting lake, and outstanding resource value water. Include the presence of aquatic invasive species and the water quality impairments or special designations listed on the current MPCA 303d Impaired Waters List that are within 1 mile of the project. Include DNR Public Waters Inventory number(s), if any.

Surface Waters

Based on a desktop review of the MDNR geospatial data (MDNR 2011-2020)[22], there are no trout streams or lakes, wildlife lakes, migratory waterfowl/resting lakes, or lakes of biological significance present within the Project Area. Based on a review of Clay County geospatial data (Clay County 2023)[23], no county ditches are located within the Project Area.

Wetlands

A wetland and waterbody field delineation was conducted in October 2022 pursuant to U.S. Army Corp of Engineers (USACE) methodology. The National Wetlands Inventory (NWI) (USFWS 2021)[24] and National Hydrography Dataset (NHD) (USGS 2022)[25] data was reviewed for the Project Area during the desktop assessment prior to field delineation. Wetland investigations were done using methodology set forth by the USACE 1987 *Wetlands Delineation Manual* (Environmental Laboratory 1987[26] and USACE 1987[27]) and the USACE's 2012 *Great Plains Region* (USACE 2010)[28]. Figure 7, Appendix A identifies water resources in relation to the Project Area, and Figure 8 depicts delineated wetlands and waterbodies within the Project Area. The table below summarizes the wetlands identified within the Project Area and within the existing property boundary.

[22] MDNR. 2011-2020. Minnesota Geospatial Commons. Available at: https://gisdata.mn.gov/group/environment. Accessed December 2022.
[23] Clay County. 2023. Clay County GIS Data Files. Zoning Districts. Available at: https://claycountymn.gov/658/GIS-Data. Accessed March 2023.
[24] USFWS. 2021. National Wetlands Inventory. Available at: https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/. Accessed October 2022.
[25] USGS. 2022. National Hydrography Dataset. Available at: https://hydro.nationalmap.gov/arcgis/rest/services/nhd/MapServer. Accessed October 2022.
[26] Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.
[27] USACE. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station (U.S.) United States. Army. Corps of Engineers Wetlands Research Program (U.S.).
[28] USACE. 2010. Regional supplement to the Corps of Engineers wetlands delineation manual: Great Plains Region. Available at:https://usace.contentdm.oclc.org/utils/getfile/collection/p266001coll1/id/7613.Accessed October 2022.

Table 11. Wetlands within the Project Area

Unique ID	Cowardin/ Flow Regime	Area (Acres)
Wetland 1A	PSS	3.27
Wetland 1B	PEM	0.42
Wetland 1C	PEM	0.48
Wetland 2	PEM	<0.01
Wetland 3	PEM	<0.01
Wetland 4	PEM	<0.01
Total		**4.20**

Waterbodies

No waterbodies are present within the proposed expansion area. Table 12 lists waterbodies within the existing mine area, outside the Project Area. Several incidental lakes are present within the existing mine, created as a result of past mining activity.

Table 12. Waterbodies within the Existing Mine Area

Unique ID	Cowardin/ Flow Regime	Area (Acres)
Incidental Lake 1	UB	5.50
Incidental Lake 2	UB	3.80
Incidental Lake 3	UB	0.93
Incidental Lake 4	PUB	0.14
Other Water 1	PEM	<0.01
Total		**10.37**

Four incidental lakes (Incidental Lake 1, 2, 3, and 4) total 10.37 acres are outside the Project Area, created as a result of aggregate mining activities. Incidental Lake 4 is a runoff catchment basin and did not contain surface water or hydrophytic vegetation. It is controlled by and connected to Incidental Lake 1 to the northwest via culvert.

Other Water 1 is a widened streambed on the southern boundary linking wetland features outside of the Project Area. It is dominated by sedges and reed canary grass (*Phalaris arundinacea*), has an average ordinary high-water mark (USACE 2005)[29] of five feet, and is 12 inches deep.

Streams

Three segments of stream within a corridor were identified within the Project Area. A stream is

[29] USACE. 2005. Regulatory guidance letter – Ordinary high water mark identification. Available at: https://www.nap.usace.army.mil/Portals/39/docs/regulatory/rgls/rgl05-05.pdf. Accessed October 2022.

present within the overall property boundary. The stream, "Stream 3", is within a setback corridor that is not proposed to be excavated. Refer to Figure 8, Appendix A.

Table 13. Streams within the Project Area

Unique ID	Cowardin/ Flow Regime	Stream Length (Feet)
Stream 1	Ephemeral	112.0
Stream 2	Intermittent	1181.0
Stream 3	Perennial	1455.9
Total		**2,748.9**

MDNR Public Waters

A review of the MDNR Public Waters Inventory (MDNR 1996)[30] shows that there are no MDNR Public Waters within the Project Area.

MPCA 303d Impaired Waters List

A review of the MPCA draft 2022 Impaired Waters List (MPCA 2022)[31] showed no impaired waters within the Project Area and one within the one-mile boundary. The nearest impaired water is Wild Rice River, South Branch, Assessment Unit Identification (AUID) 09020108-662, which is approximately 0.60 miles north of the Project Area. Wild Rice River, South Branch is designated as impaired for *Escherichia coli* (*E. coli*) presence and benthic macroinvertebrates bioassessments.

Floodway/Floodplain

According to the Federal Emergency Management Agency (FEMA) National Flood Hazard Layer (NFHL) mapping tool (FEMA 2021)[32], the Project Area is identified as an area of minimal flood hazard. Additionally, an effective Flood Insurance Rate Map (FIRM) from 2012 does not identify the Project Area as a flood risk. An unofficial FIRM of Clay County was released by FEMA (Clay County Minnesota 2012)[33] in May 2012 and indicates that the Project Area is outside of preliminary or effective floodplain. Appendix B includes the 2012 Project Area FEMA FIRM and the Hagen Township FEMA FIRM floodplain maps.

ii. Groundwater – aquifers, springs, seeps. Include: 1) depth to groundwater; 2) if project is within a MDH wellhead protection area; 3) identification of any onsite and/or nearby

[30]MDNR. 1996. Protected waters and wetlands, Clay County Minnesota. Available at: https://www.dnr.state.mn.us/waters/watermgmt_section/pwi/maps_nw.html. Accessed January 2023.
[31] MPCA. 2022. Draft 2022 Impaired Waters List. Available at: https://www.pca.state.mn.us/water/impaired-waters-viewer-iwav. Accessed March 2022.
[32] FEMA. 2021. National Flood Hazard Layer (NFHL) Viewer. Available at: https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd. Accessed December 2022.
[33] Clay County Minnesota. 2012. Floodplain Management. Available at: https://claycountymn.gov/365/Flood-Insurance-Rate-Maps-by-Township. Accessed December 2022.

wells, including unique numbers and well logs if available. If there are no wells known on site or nearby, explain the methodology used to determine *this.*

A search of the Minnesota Department of Health (MDH) Minnesota Well Index (MWI) (MDH 2019)[34] database shows no wells present within the existing mine area or the proposed expansion area; however, Zavoral provided information that there is an existing well on the eastern edge of the Project Area (Unique Well No. 841843) that was installed in 2019 but that has never been utilized. If any other wells are found during construction, they will be sealed and abandoned in compliance with MDH regulations by a licensed contractor. Table 14 lists wells present within one mile of the Project Area. Figure 9, Appendix A identifies the locations of wells within one mile of the Project Area.

Table 14. Verified Wells within One Mile of the Project Area

Well ID	Use Type	Distance and Direction from Project Area (ft.)	Depth (ft.)	MWI Static Water Level (ft.)	MWI Surface Elevation (MSL)
100859	Domestic	525 SE	58	22	1,039
100876	Domestic	3,141 NE	168	-1	1,041
163152	Domestic	4,353 SW	112	15.6	1,008
163351	Domestic	2,788 N/NE	196	-1	1,000
516619	Domestic	2,206 N	70	18	1,005
568487	Domestic	4,333 N	90	19	997
576372	Domestic	2,710 NE	54	31	1,034
613041	Domestic	4,367 S/SE	65	12	1,065
723219	Domestic	325 E	82	16	1,038
723229	Domestic	2,252 NW	70	11	979

Source: MDH MWI

1) Depth to groundwater

Based on a review of the MDH MWI (MDH 2019)[34], focusing on domestic water wells located near the Project Area, the depth to static water level ranges from -1 feet to 31 feet below grade. The MWI well logs indicate the presence of clay soil during well installation except for Unique Well 723219 located adjacent to the east. Based on the static water level of 18 feet below grade during installation, it would be anticipated to be representative of the static water level at the proposed expansion area. In addition, two wells (Unique Wells 100876 and 163351) located to the northeast of the proposed expansion area were completed in a sand unit at depths greater than 150 feet below grade, indicating static water levels above the ground surface. The majority of the surrounding water wells appear to be completed at depths below clay units and the static water levels after completion indicate a level above the clay units and therefore a vertical gradient appears to be present from the deeper sand deposits. This would appear to indicate a limited potential for impacts associated with the mining operation and dewatering activities to the surrounding wells. Based on the previous operation and the absence of documented impacts to surrounding wells, including Unique Well 723219, it appears that the mining operation does not

[34] MDH. 2019. Minnesota Well Index. Available at: https://mnwellindex.web.health.state.mn.us/mwi/. Accessed December 2022.

impact the local wells.

2) MDH Wellhead Projection Area

The Project Area is not within a MDH Wellhead Protection Area (WHPA) or a Drinking Water Supply Management Area (DWSMA) (MDH undated)[35]. The two closest DWSMA's are in Felton and Ulen and are located over five miles from the Project Area. It would not be anticipated that the proposed Project would impact the referenced DWSMA's.

b. Describe effects from project activities on water resources and measures to minimize or mitigate the effects in Item b.i. through Item b.iv. below.

i. Wastewater - For each of the following, describe the sources, quantities and composition ofall sanitary, municipal/domestic and industrial wastewater produced or treated at the site.

1) If the wastewater discharge is to a publicly owned treatment facility, identify any pretreatment measures and the ability of the facility to handle the added water and waste loadings, including any effects on, or required expansion of, municipal wastewater infrastructure.

No wastewater discharge is intended to result from the expansion Project. New open areas must be constructed to continue to direct wastewater to the appropriate basins.

2) If the wastewater discharge is to a subsurface sewage treatment systems (SSTS), describe the system used, the design flow, and suitability of site conditions for sucha system. If septic systems are part of the project, describe the availability of septage disposal options within the region to handle the ongoing amounts generated as a result of the project. Consider the effects of current Minnesota climate trends and anticipated changes in rainfall frequency, intensity and amount with this discussion.

The Project would not include wastewater discharge to a subsurface sewage treatment system.

3) If the wastewater discharge is to surface water, identify the wastewater treatment methods and identify discharge points and proposed effluent limitations to mitigate impacts. Discuss any effects to surface or groundwater from wastewater discharges, taking into consideration how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects.

Wastewater from equipment washing and sand and gravel wash ponds is considered industrial wastewater and is permitted under the NPDES and SDS General Permit MNG490590 for Nonmetallic Mining and Associated Activities (General Permit), which covers stormwater and wastewater.

[35] MDH. Undated. Source Water Protection Web Map Viewer. Available at: https://mdh.maps.arcgis.com/apps/View/index.html?appid=8b0db73d3c95452fb45231900e977be4. Accessed December 2022.

ii. ***Stormwater - Describe changes in surface hydrology resulting from change of land cover. Describe the routes and receiving water bodies for runoff from the project site (major downstream water bodies as well as the immediate receiving waters). Discuss environmental effects from stormwater discharges on receiving waters post construction including how the project will affect runoff volume, discharge rate and change in pollutants.Consider the effects of current Minnesota climate trends and anticipated changes in rainfall frequency, intensity and amount with this discussion. For projects requiring NPDES/SDS Construction Stormwater permit coverage, state the total number of acres that will be disturbed by the project and describe the stormwater pollution prevention plan (SWPPP), including specific best management practices to address soil erosion and sedimentation during and after project construction. Discuss permanent stormwater management plans, including methods of achieving volume reduction to restore or maintain the natural hydrology of the site using green infrastructure practices or other stormwater management practices. Identify any receiving waters that have construction-related water impairments orare classified as special as defined in the Construction Stormwater permit. Describe additional requirements for special and/or impaired waters.***

The landscape drains toward the perennial stream complex to the west, which is a part of the larger Wild Rice Watershed. The soil infiltration rates throughout the Project Area are relatively high, with the exception of areas containing Arveson clay loam, so excessive runoff at the site is not perceived as an issue.

Stormwater discharge is regulated by the MPCA through a NPDES/SDS General Permit for Nonmetallic Mining and Associated Activities (MNG490590). The General NPDES Permit requires the preparation of a site-specific Stormwater Pollution Prevention Plan (SWPPP). An existing SWPPP was previously prepared for the existing gravel mining/extraction operation. The SWPPP identifies stormwater Best Management Practices (BMPs) to protect water quality and minimize erosion. Stormwater will be managed onsite, in compliance with the existing stormwater permit and associated SWPPP while the permit modification is being processed in accordance with Minn. R. 70010190. No discharge is planned for the expansion area and stormwater will continue to be directed towards onsite basins/pits.

iii. ***Water appropriation - Describe if the project proposes to appropriate surface or groundwater (including dewatering). Describe the source, quantity, duration, use and purpose of the water use and if a DNR water appropriation permit is required. Describe anywell abandonment. If connecting to an existing municipal water supply, identify the wells tobe used as a water source and any effects on, or required expansion of, municipal water infrastructure. Discuss environmental effects from water appropriation, including an assessment of the water resources available for appropriation. Discuss how the proposed water use is resilient in the event of changes in total precipitation, large precipitation events, drought, increased temperatures, variable surface water flows and elevations, and longer growing seasons. Identify any measures to avoid, minimize, or mitigate environmental effects from the water appropriation. Describe contingency plans should theappropriation volume increase beyond infrastructure capacity or water supply for the project diminish in quantity or quality, such as reuse of water, connections with another water source, or emergency connections.***

It is anticipated that the current water appropriation for the operation would be sufficient for the expansion area. The MDNR Water Appropriation Permit allows for water withdrawal from the aggregate/gravel pit up to 20 million gallons (mg) per year for pit dewatering and up to 36 mg of water per year for washing (DNR WAP 20210171). Water appropriated or used in 2022 was 10,700,000 gallons for aggregate washing. There was no pit dewatering in 2022. Note: The dredge method of mining described in Item 6 has alleviated Zavoral's need to dewater for purposes of extraction. Zavoral has not discharged water from dewatering since 2021. Prior issues associated with discharge (i.e., drainage issues) were also addressed by Zavoral with the addition of sediment settling basins and a rock rip rap swale.

Because annual extraction rates of material would remain the same, it is anticipated that the Project will utilize similar quantities of water and would not require modification of the existing permit. Water will also be used for dust suppression within the Project Area, which is permitted under the MDNR Water Appropriation Permit.

iv. Surface Waters

a) Wetlands - Describe any anticipated physical effects or alterations to wetland features such as draining, filling, permanent inundation, dredging and vegetative removal. Discuss direct and indirect environmental effects from physical modification of wetlands, including the anticipated effects that any proposed wetland alterations may have to the host watershed, taking into consideration how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects. Identify measures to avoid (e.g., available alternatives that were considered), minimize, or mitigate environmental effects to wetlands. Discuss whether any required compensatory wetland mitigation for unavoidable wetland impacts will occur in the same minor or major watershed and identify those probable locations.

The proposed excavation area includes two wetlands. Wetland 1B and Wetland 4 would be impacted through excavation. Wetland 1B is located at the north end of the western lobe of the project area. The wetland is 0.42 acres and is connected to riparian wetlands along the east side of the stream. Additionally, Wetland 4 is a 0.002 acres wetland at the north end of the Project Area. Both wetlands will be directly impacted through excavation. Refer to Figure 8, Appendix A for wetland locations.

Riparian wetlands are present on both sides of the stream (Wetland 1A and Wetland 1C). Both the stream and riparian wetlands are outside the excavation area and are within a 100-foot setback from the Ordinary High Water (OHW) of the stream. No direct wetland impacts will occur to these wetlands. While excavation will occur outside the stream setback, indirect impacts are not anticipated. Under existing conditions with excavation on the east side of the stream, no drainage impacts have occurred to riparian wetlands. The expansion of gravel mining is not anticipated to impact nearby wetlands.

Taking into consideration the climate trends identified in Item 7, and acknowledging that there are wetlands and streams in the Project Area that may be affected by increased rain fall and severity of rain events, allows the Project the opportunity to avoid or minimize impacts that influence effects associated with increased climate

trends. The Proposed Project would not impact the nature of the wetlands in the Project Area relative to their current state. Furthermore, with mining excavation providing additional capacity for severe rain events, flooding would not be anticipated to result in the Project Area. This avoidance and minimization along with the SWPP and BMPs integrated into the Project, demonstrates the Project's efforts to acknowledge and plan for the climate trends described in Item 7.

b) Other surface waters- Describe any anticipated physical effects or alterations to surface water features (lakes, streams, ponds, intermittent channels, county/judicial ditches) such as draining, filling, permanent inundation, dredging, diking, stream diversion, impoundment, aquatic plant removal and riparian alteration. Discuss direct and indirect environmental effects from physical modification of water features, taking into consideration how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects. Identify measures to avoid, minimize, or mitigate environmental effects to surface water features, including in-water Best Management Practices that are proposed to avoid or minimize turbidity/sedimentation while physically altering thewater features. Discuss how the project will change the number or type of watercraft on any water body, including current and projected watercraft usage.

No surface waters were identified within the proposed expansion area. Therefore, alterations to surface waters are not anticipated within the proposed expansion area.

The stream that crosses the Project Area is excluded from the proposed mining area by a 100-foot setback from the OHW on either side of the stream. Access to mining west of the stream would be planned to avoid aquatic impacts including stream realignment. Refer to Figure 3, Appendix A.

Surface waters are limited to four incidental lakes within the existing mine area that are a result of current mining activities. It is not anticipated that the Project would reduce the number of incidental lakes. BMP measures, as a part of the SWPPP, would be in place to minimize environmental effects to surface water features.

13. Contamination/Hazardous Materials/Wastes

a. Pre-project site conditions - Describe existing contamination or potential environmental hazardson or in close proximity to the project site such as soil or ground water contamination, abandoned dumps, closed landfills, existing or abandoned storage tanks, and hazardous liquid or gas pipelines. Discuss any potential environmental effects from pre-project site conditions that would be caused or exacerbated by project construction and operation. Identify measures to avoid, minimize or mitigate adverse effects from existing contamination or potential environmental hazards. Include development of a Contingency Plan or Response Action Plan.

A review of the MPCA *What's in My Neighborhood* (WIMN) database[36] was conducted to identify documented potentially contaminated sites within or in the vicinity of the Project Area. No WIMN records are located within the Project Area. One inactive and one active feedlot site are located

[36] MPCA. 2020. What's in My Neighborhood. Available at: https://www.pca.state.mn.us/data/whats-my-neighborhood. Accessed July 2023.

within one half mile of the Project Area (Figure 10, Appendix A). No known leaks or spills have occurred at the existing gravel pit. A single leak at a neighboring aggregate mine occurred at nearby MPCA sites over one mile of the Project Area and gravel pit. Figure 10, Appendix A identifies MPCA WIMN sites within the vicinity of the Project Area. Table 15 summarizes sites within one-half mile of the Project Area and gravel pit.

Table 15. MPCA WIMN Database Inquiry Results

Site ID	Site Name	MPCA Program	Status
53175	David J Syverson Farm	• Feedlots	Inactive
245764	Kevin Harder	• Feedlots	Active

A review of the Minnesota Department of Agriculture (MDA) WIMN[37] was conducted to identify documented potentially contaminated sites within or in the vicinity of the Project Area. No contaminated sites were identified within or near the Project Area.

The construction and operation of the gravel pit expansion is not anticipated to exacerbate any pre-existing environmental hazards. If potentially contaminated soils or other potentially hazardous materials are encountered during construction, plans will be developed to properly handle and treat contaminated soil and/or groundwater as necessary. Any contaminated soils or other potentially hazardous materials encountered during construction will be handled and disposed of in accordance with MPCA and any other applicable requirements.

The existing mine operation's Green Gravel Pit (Green Pit) Stormwater Pollution Prevention Plan (P2), prepared as required by coverage under the Green Pit NPDES Permit, is provided in Appendix C.

b. Project related generation/storage of solid wastes - Describe solid wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from solid waste handling, storage and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of solidwaste including source reduction and recycling.

During operation, solid wastes generated will be typical of an industrial construction Project. Waste produced during operation of the gravel pit is not expected to change in type or volume from the existing operations. Waste would be disposed of properly in dumpsters on site and collected regularly by licensed waste disposal provider.

c. Project related use/storage of hazardous materials - Describe chemicals/hazardous materials used/stored during construction and/or operation of the project including method of storage. Indicate the number, location and size of any new above or below ground tanks to store petroleum or other materials. Indicate the number, location, size and age of existing tanks on the property that the project will use. Discuss potential environmental effects from accidental spill or release of hazardous materials. Identify measures to avoid, minimize or mitigate adverseeffects from the use/storage of chemicals/hazardous materials including source reduction and recycling. Include development of a spill prevention plan.

[37] MDA. 2022. What's in My Neighborhood – Agricultural. Available at: https://app.gisdata.mn.gov/mda-agchem/. Accessed December 2022.

There are no permanent storage tanks in the Project Area, and none would be added with the expansion. Each Hot Mix Asphalt (HMA) plant, crushing plant, or mining operation would bring in a portable fuel tanker or fuel truck. The location of this activity with the Project Area has and would continue to vary. Each HMA plant, crushing plant, or mining operation will have a tool trailer and/or service truck onsite. Mechanics performing these services are equipped with spill kits and absorbent pads in the event of a minor spill. Equipment services are performed onsite by mechanics and all fluids are brought to site and collected in the service trucks. Used fluids are brought back to the Zavoral shop location (Main Shop, Building A, 1616 10th Street NE, East Grand Forks, MN 56721) and properly disposed. When portable tanks are onsite, they are equipped with drip pans at tanker filling and transfer locations.

Trucks and equipment utilized during the operation of the mining operation may require the use of potentially hazardous materials, such as gasoline or diesel fuels, motor oils, hydraulic fluids, and other industrial lubricants. Vehicles transporting hazardous materials would be equipped with rapid-response spill kits and refueling procedures will be implemented to eliminate leakage.

To minimize potential spill effects, such as soil contamination, air and water pollution, or harm to plants and animals, the Project would conform to the spill prevention and response procedures outlined in the P2 (Appendix C) for the operation.

In addition to the mining of aggregate, the Project would continue to supply and store materials for their customers including materials related to bituminous asphalt and gravel roadways. On-site asphalt storage and processing is part of the current operation and would continue with this Project. The Clay County Interim Use Permit includes approval for a HMA plant (#801239). Per the Interim Use Permit, the operator must have a site-specific plan that plans for the avoidance of nuisance conditions and environmental impacts.

d. Project related generation/storage of hazardous wastes - Describe hazardous wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from hazardous waste handling, storage, and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of hazardous waste including source reduction and recycling

As described in Item 13.c., hazardous material use would be limited and any waste created, would be collected and properly disposed of, in most cases by the vendor bringing the hazardous material into the Project Area or using the hazardous material in the Project Area. There are no anticipated environmental effects because the parties handling the hazardous waste have been trained to use the material and also handle any accidents that could occur (e.g., minor spill). All parties handling hazardous material would be trained, would avoid use of the hazardous material in sensitive areas (e.g., adjacent to mining pits or water bodies) and be prepared to respond accordingly (training and equipment), if a spill were to occur.

14. Fish, Wildlife, Plant Communities, and Sensitive Ecological Resources (Rare Features)

a. Describe fish and wildlife resources as well as habitats and vegetation on or in near the site.

The Project resides within the Glacial Lake Agassiz Basin of the Lake Agassiz Plain which is an ecological region of Clay County. These regions are described in the Ecological Regions of

Minnesota[38]. This ecological region spans from the east central section to the northern border of the county and was formerly comprised of a mosaic of upland and wetland prairie vegetative communities. Prairie community vegetation is composed primarily of tallgrass prairie species dominated by big bluestem (*Andropogon gerardii*), little bluestem (*Schizachyrium scoparium*), switchgrass (*Panicum virgatum*), Indian grass (*Sorghastrum nutans*), needle-and-thread (*Hesperostipa comata*), and diverse native forb species. Woody vegetation can occur along riparian corridors and include dogwood (*Cornus* spp.) and willow (*Salix* spp.) species.

The Project Area and surrounding area contain wetland, grassland, agricultural, and aggregate mining operations (disturbed areas) providing habitat for several species of wildlife. It is likely home to a variety of relatively common species including; deer, coyote, fox, small mammals, , a variety of passerines, predatory species, or sandpipers, , reptiles, and amphibians. No substantial fish habitats are found within the Project Area.

b. Describe rare features such as state-listed (endangered, threatened or special concern) species, native plant communities, Minnesota County Biological Survey Sites of Biodiversity Significance, andother sensitive ecological resources on or within close proximity to the site. Provide the license agreement number (LA-2022-23) and/or correspondence number (ERDB_____) from which the data were obtained and attach the Natural Heritage letter from the DNR. Indicate if any additional habitat or species survey work has been conducted within the site and describe the results.

State – Listed Species and Significant Communities

Under Stantec's Limited License to Use Copyrighted Material (LA-2022-23) related to Rare Features Data, the MDNR Natural Heritage Information System (NHIS) was searched in February 2023 to identify species within the Project Area and within a one-mile buffer of the Project Area. The NHIS search indicated one record within the proposed Project Area: the greater prairie-chicken *(Tympanuchus cupido;* special concern*)*. One additional record was identified outside of the Project Area but within the one-mile buffer: the loggerhead shrike (*Lanius ludovicianus*; endangered). While Stantec used their limited license with NHIS to obtain these species records, additionally consultation was initiated through the MDNR Minnesota Conservation Explorer (MCE) on August 17, 2023. On October 18, 2023, the MDNR response was received and incorporated accordingly (Appendix D).

Greater prairie-chicken

During the breeding season, this species utilizes short cover for courtship displays and dense cover (30-38 centimeters high) for nesting. In the summer, open habitats like native prairies and grasslands that have been disturbed by burning, haying, or grazing are preferred. In the fall and winter, the greater prairie-chicken uses croplands and grass/forb habitats for foraging, low areas with dense vegetation for roosting, and snow for burrowing. (MDNR 2022a)[39].

The greater prairie-chicken is listed as a state special concern species and is not regulated by the MDNR. However, given that native prairie and hayfields were observed within the Project Area

[38] White, D. 2020. Ecological Regions of Minnesota: Level III and IV maps and descriptions. http://ecologicalregions.info/data/mn/Minnesota-LevelIII+LevelIV-Ecoregions-Text+Appendices_2020-0424.pdf
[39] MDNR. 2022a. Rare Species Guide. Available at: https://www.dnr.state.mn.us/rsg/index.html. Accessed November 2022.

during the October 2022 wetland delineation and NHIS data identified the species within and around the Project Area, this species is likely to occur within the Project Area.

Loggerhead shrike

The loggerhead shrike is associated with open landscapes and is mostly restricted to areas that were historically prairie or oak savanna in the state of Minnesota. Other potential habitat includes pastures, old fields, shelterbelts, farmyards, and cemeteries. This bird can be seen perching at a variety of sites, including hedgerows, shrubs, and small trees. Sites with thorned vegetation, such as honey locust (*Gleditsia triacanthos*), black locust (*Robinia pseudoacacia*), and hawthorns (*Crataegus sp.*) or barbed wire are useful as this species is carnivorous and impales prey. Finally, this species is rarely found in cultivated fields or non-native grasslands. (MDNR 2023a)[37].

The Project Area contains shrub/scrub and open landscape in the form of grassland habitat that may support the loggerhead shrike. Additionally, according to the MDNR Ecological Classification System data (MDNR 2023a)[40], the pre-settlement vegetation within the area was tallgrass prairie and wet prairie. According to findings from the October 2022 wetland delineation, thorny vegetation was not found in the Project Area. As such, the Project will have ***no impact*** to the loggerhead shrike.

Native plant communities and sites of biodiversity and ecological significance

Native plant communities, biodiversity sites, and regionally significant ecological areas (RSEAs) were reviewed within the Project Area and a one-mile buffer using Stantec's NHIS license (LA-2022-23). No native plant communities, sites of biodiversity significance, or RSEAs were identified within the Project Area.

However, sites are located outside of the Project Area but within the one-mile buffer of the Project Area. These sites include floodplain forest systems, mesic hardwood forest systems, upland prairie systems, wetland prairie systems, complex communities, and sites of biodiversity significance ranked as "below" and "moderate". Given that these sites are located outside of the Project Area, ranging from approximately one-quarter mile to a mile away from the Project Area, it is not anticipated that they would be impacted by the Project expansion.

Federally – Listed Species

The United States Fish and Wildlife (USFWS) Information for Planning and Consultation (IPaC) tool (USFWS 2022a)[41] was reviewed to identify federally listed species within the Project Area. Three species are federally listed within the Project Area and one is a candidate for federal listing: the northern long-eared bat (*Myotis septentrionalis*; endangered), the Dakota skipper (*Hesperia dacotae*; threatened), the western prairie fringed orchid (*Platanthera praeclara*; threatened), and the monarch butterfly (*Danaus plexippus*; candidate). The IPaC results are included as Appendix D.

Northern long-eared bat

Suitable roosting, forage, and travel habitat for the northern long-eared bat (NLEB) in the summer

[40] MDNR. 2023a. Ecological Classification System. Available at: https://www.dnr.state.mn.us/ecs/index.html. Accessed January 2023.
[41] USFWS. 2022a. IPaC – Information, Planning, and Conservation System. Available at: http://ecos.fws.gov/ipac/. Accessed November 2022.

consists of a wide variety of contiguous forested and wooded habitats with varying tree density and amounts of canopy closure. While roosting, NLEB is generally found in deep crevices in areas such as forests and woodlots (i.e., live trees and/or snags greater than or equal to three inches in diameter at breast height that have exfoliating bark, cracks, crevices, and/or cavities) as well as linear features such as fence rows, riparian forests, and other wooded corridors. NLEB roosts in both live trees or snags (Sasse and Perkins 1996[42], Foster and Kurta 1999[43], Owen et al. 2003[44]). Additional summer habitat for the NLEB consists of areas adjacent to wooded areas, namely emergent wetlands and edges of agricultural fields, old fields, and pastures. The NLEB has also been observed roosting in human-made structures, such as buildings, barns, bridges, and bat houses. (USFWS 2022b)[45]. During winter months, NLEB hibernates in caves or abandoned mines (Foster and Kurta 1999)[41].

Clay County is not listed as a county with documented white-nose syndrome (WNS; WNS Response Team 2022)[46]. According to the NHIS database, no known roost trees or hibernacula are in the Project Area or within a one-mile buffer of the Project Area. The MDNR and USFWS maintain a list of townships containing documented NLEB maternity roost trees and/or hibernacula entrances. Based on a review of this list, the Project Area is not within 0.25 miles of a known, occupied hibernaculum or within 150 feet of a known, occupied maternity roost tree (MDNR and USFWS 2021)[47].

The Project Area is composed of wetlands, grasslands, scrub/shrub, and disturbed areas associated with aggregate mining operations. The Project Area does not contain potentially suitable summer roosting habitat (contiguous forest) or potentially suitable overwintering habitat (caves or abandoned mines). Additionally, Clay County is not in a WNS zone, and no known maternity roost trees or hibernacula were identified in the NHIS review or in the MDNR and USFWS joint document. According to the October 2022 wetland delineation, large, mature trees are not present within the Project Area that would support the NLEB. The wetlands in question in this investigation were classified as shrub swamps, shallow marshes, and fresh meadows. These wetlands did not have a tree stratum and were instead dominated by shrubs, such as dogwood and willow, and understory vegetation, such as cattail and sedges, that could not support roosting behavior. As such, no suitable habitat (contiguous forest) is present, and the Project will have ***no effect*** on the NLEB.

Dakota skipper

The Dakota skipper is a small to medium-sized butterfly that is native to tallgrass and mixed prairies of the northern Great Plains. The Dakota skipper occurs in more than one type of high-quality native grassland including wet-mesic tallgrass and dry-mesic mixed grass prairie types (Royer and Morrone 1992, Dana 1997)[48, 49] High-quality prairie is defined as sites containing assemblages of native plant species, including native grasses used by larvae for food and shelter, and forbs used by adults for

[42] Sasse, D.B., and P.J. Pekins. 1996. Summer roosting ecology of northern long-eared bats (*Myotis septentrionalis*) in the White Mountain National Forest. Bats and forests symposium. British Columbia Ministry of Forests Working
Paper 23:91-101.
[43] Foster, R.W. and A. Kurta. 1999. Roosting ecology of the northern bat. (*Myotis septentrionalis*) and comparisons with the endangered Indiana bat (*Myotis sodalis*). Journal of Mammalogy 80:659-672.
[44] Owen, et al. 2003. Homerange size and habitat use by the northern Myotis (*Myotis septentrionalis*). American Midland Naturalist 150: 352-359.
[45] USFWS. 2022b. Rangewide-Wide Indiana Bat & Northern Long-Eared Bat Survey Guidelines. Available at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines. Accessed March 2023.
[46] WNS Response Team. 2022. Where is WNS Now? Available at: https://www.whitenosesyndrome.org/where-is-wns. Accessed January 2023.
[47] MDNR and USFWS. 2021. Townships containing documented northern long-eared bat (NLEB) maternity roost trees and/or hibernacula entrances in Minnesota. Available at: https://files.dnr.state.mn.us/eco/ereview/minnesota_nleb_township_list_and_map.pdf. Accessed November 2022.
[48] Royer, R. A. and Marrone, G.M. 1992. Conservation Status of the Dakota Skipper (Hesperia dacotae) in North and South Dakota. A Report to the United States Department of the Interior Fish and Wildlife Service. Denver, Colorado. 44pp.
[49] Dana, R.P. 1997 Conservation Management of the Prairie Skippers Hesperia dacotae and Hesperia ottoe: basic biology and threat of mortality during prescribed burning in spring. Minnesota Agricultural Experiment Station Bulletin 594-1991 (AD-SB-5511-S). University of Minnesota, St. Paul. 63pp.

nectar. Low quality prairie (sites that are no longer recognizable as native prairie but where some native forbs or grasses occur) and grasslands dominated by invasive or non-native grasses are generally not used by this species. (Vaughan and Shepherd 2005)[50].

The Project Area is composed of wetlands, grasslands, scrub/shrub, and disturbed areas associated with aggregate mining operations. According to the October 2022 wetland delineation, native prairie was present within and around the Project Area. Field data sheets from this investigation also indicated the presence of little bluestem and big bluestem within the Project Area. Additionally, Felton Prairie SNA is approximately 0.75 miles west of the Project Area and the Felton State Wildlife Management Area (WMA) is approximately 2.5 miles southwest of the Project Area. The Dakota Skipper persists at the Felton Prairie Scientific and Natural Area. Suitable habitat (native prairie) for the Dakota skipper is therefore present within and in the vicinity of the Project Area. However, given the level of previous disturbance from mining operations, the presence of active agriculture in the expansion area, and the lack of native prairie in the expansion area, the Project will have ***no effect*** on the Dakota skipper.

Western prairie fringed orchid

Habitat for the western prairie fringed orchid in Minnesota is almost exclusively in remnant native plant communities where they occur in full sunlight on calcareous or sandy soil (DNR Rare Species Guide, Accessed July 11, 2023). It can also be found in old fields and roadside ditches in nearby states. The species' range is west of the Mississippi River and is currently known to be extirpated from Oklahoma and South Dakota. (USFWS 1996 and USFWS undated)[51,52].

Suitable habitat, including fresh meadowFs dominated by sedges, are present within the Project Area according to the October 2022 wetland delineation. The species also has the potential to occur along the stream edge that runs north/south in the western portion of the Project Area. During field surveys, the western prairie fringed orchid was not recorded within the Project Area, including within wet prairie areas. This is possibly a result of the habitat being disturbed from previous gravel mining. No wetland or stream impacts are anticipated as part of the expansion. Additionally, the expansion would take place in an area dominated by active agriculture. Therefore, the Project would have ***no effect*** on the western prairie fringed orchid.

Monarch butterfly

The monarch butterfly is a migratory butterfly that exists in two main populations within the United States divided by the Rocky Mountains: the eastern population that overwinters in the mountains of Mexico, and the western population that overwinters along the southern pacific coast of California (United States Department of Agriculture [USDA] Forest Service undated)[53]. This species generally occurs in areas with high densities of nectar sources, preferably native prairies with nectar species such as black-eyed Susan (*Rudbeckia hirta*), narrow-leaved coneflower (*Echinacea angustifolia*), and

[50]Vaughan, D.M., and M. D. Shepherd. 2005. Species Profile: *Hesperia dacotae*. In Shepherd, M.D., D. M. Vaughan, and S. H. Black (Eds). Red List of Pollinator Insects of North America. CD-ROM Version 1 (May 2005). Portland, OR: The Xerces Society for Invertebrate Conservation.
[51] USFWS 1996. Western prairie fringed orchid. Recovery plan. Available at: https://ecos.fws.gov/docs/recovery_plan/960930a.pdf. Accessed September 2022.
[52] USFWS. undated. United States Fish and Wildlife Service. Great Plains White Fringed Orchid. Available at: Great Plains White Fringed Orchid (Platanthera praeclara) | U.S. Fish & Wildlife Service (fws.gov). Accessed September 2022.
[53] United States Department of Agriculture [USDA] Forest Service. undated. Migration and Overwintering. Available at: https://www.fs.fed.us/wildflowers/pollinators/Monarch_Butterfly/migration/. Accessed November 2021.

rough blazing star (*Liatris aspera*) that are utilized for feeding by adults (MDNR 2022b)[54]. However, the presence of milkweed (*Asclepias* spp.) is required for breeding habitat as it is the only genus on which the larvae can feed (National Wildlife Federation undated)[55]. The monarch butterfly is a candidate for federal listing due to habitat loss, relating mainly to the loss of milkweeds and native prairies.

The monarch butterfly is a candidate for federal listing and is not regulated by the USFWS at this time. However, suitable foraging habitat for the monarch butterfly (native prairie) is present in and within the vicinity of the Project Area. No suitable breeding habitat (milkweeds) was reported during the October 2022 wetland delineation. Given the presence of suitable foraging habitat, this species is likely to occur within the Project Area.

c. Discuss how the identified fish, wildlife, plant communities, rare features and ecosystems may be affected by the project including how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects. Include a discussion on introduction and spread of invasive species from the project construction and operation. Separately discuss effects to known threatened and endangered species.

Greater prairie-chicken

The greater prairie chicken is listed as state special concern and not regulated by the MDNR, however, given the presence of suitable habitat (native prairie and hayfields) and historic observations of the species in the Project Area, the species is likely to occur. The grasslands this species depends on are declining due to human caused fragmentation, but the extremes of climate change are also adding to the decline. Of particular concern are small wetlands within grassland ecosystems that supply groundwater. With warmer temperatures, rainfall patterns are anticipated to be altered and evaporation rates anticipated to be higher. This would put further stress on grassland habitats and could ultimately lead to further habitat loss for the greater prairie chicken (Bagne et al. undated)[56]. Additionally, according to the 2010 State of the Birds Report on Climate Change conducted by the North American Bird Conservation Initiative (NABCI), the species vulnerability to climate change is ranked as medium. This is largely due to the warming temperatures and increased precipitation leading to woody encroachment on grassland habitat. (NABCI 2010)[57].

Loggerhead shrike

The Project Area contains no suitable habitat for the loggerhead shrike (shrub/scrub, grasslands, open landscapes) . Therefore, the proposed Project expansion will not impact this species. According to the 2010 State of the Birds Report on Climate Change conducted by the NABCI, the effects of warming temperatures on the loggerhead shrike have not been thoroughly investigated, but their assessment indicated a low vulnerability (NABCI 2010)[57]. However, given the carnivorous diet of this species, it could be impacted by prey availability given the various vulnerabilities of other bird,

[54] MDNR. 2022b. Butterfly Gardens. Available at: https://www.dnr.state.mn.us/gardens/butterfly/index.html. Accessed March 2022.
[55] National Wildlife Federation undated. Monarch Butterfly. Available at: https://www.nwf.org/Educational-Resources/Wildlife-Guide/Invertebrates/Monarch-Butterfly. Accessed December 2021.
[56] Bagne K., Ford P., and Reeves M. Undated. Grasslands and Climate Change. Climate Change Resource Center. Rocky Mountain Research Station. Available at: https://www.fs.usda.gov/ccrc/topics/grasslands-and-climate-change. Accessed January 2023.
[57] North American Bird Conservation Initiative, U.S. Committee. 2010. *The State of the Birds 2010 Report on Climate Change, United States of America*. Washington, DC: U.S. Department of the Interior. http://www.stateofthebirds.org/2010/pdf_files/State of the Birds_FINAL.pdf

reptile, insect, and small mammal species to climate change (The Cornell Lab of Ornithology 2023)[58].

Native plant communities and sites of biodiversity and ecological significance

No significant communities are located within the Project Area. No impacts are anticipated for the communities outside of the Project Area but within a one-mile buffer of the Project Area resulting from Project expansion. However, the projected Minnesota climate trends of warmer temperatures and increased precipitation may impact some species and thus the biodiversity of these sites, depending on how vulnerable the present species are to climatic change.

Northern long-eared bat

Suitable summer and maternity roost habitat (contiguous forest) or overwintering habitat (caves or abandoned mines) for NLEB do not occur within the Project Area. As such, there would be no effect on the species resulting from the Project. However, changes in temperature and precipitation may influence the NLEB's available suitable roosting and foraging habitat, as well as prey availability (USFWS 2022c)[59]. Although a less significant stressor compared to white-nose syndrome, climate change variables may negatively affect the NLEB (USFWS 2022d)[60].

Dakota skipper

Suitable habitat for the Dakota skipper (native prairie) is located within and in the vicinity of the Project Area; however, due to previous gravel mining operations, the presence of active agriculture within the Project expansion site, and the lack of native prairie within the Project expansion site, the Project would have no effect on the Dakota skipper. One concern for this species is the warming temperatures in Minnesota that can lead to drier conditions, extended fire seasons, and a heightened risk for more intense wildfires (USGS undated)[61]. While fire is a necessary component of the health of grassland ecosystems, the increase in wildfire potential may result in unsustainable mortality the Dakota skipper (MDNR 2023a)[37].

Western prairie fringed orchid

Suitable habitat for the western prairie fringed orchid (native prairie and fresh meadows) is not present within the Project Area. However, active agriculture is present within the Project and no wetland or stream impacts are anticipated resulting from the Project expansion. Therefore, the Project would have no effect on this species. With regards to Minnesota climate trends, namely warmer temperatures and increased precipitation, this species would likely be impacted by the resulting extreme conditions, such as droughts and flooding. This species notably does not persist under these conditions (MDNR 2023a)[37].

[58] The Cornell Lab of Ornithology. 2023. All About Birds – Loggerhead Shrike Life History. Available at: https://www.allaboutbirds.org/guide/Loggerhead_Shrike/lifehistory. Accessed January 2023.
[59] USFWS. 2022c. Northern Long-Eared Bat Overview. Available at: fws.gov/species/northern-long-eared-bat-myotis-septentrionalis. Accessed September 2022
[60] USFWS. 2022d. Proposed Rule 87 FR 16442: Endangered and Threatened Wildlife and Plants; Endangered Species Status for Northern Long-Eared Bat. Available at: https://www.federalregister.gov/d/2022-06168. Accessed January 2023.
[61] USGS. Undated. Wildfire and Climate Change. Available at: https://www.usgs.gov/science-explorer/climate/wildfire. Accessed January 2023.

Monarch butterfly

The monarch butterfly is a candidate for federal listing and is not regulated by the USFWS at this time. However, given that suitable foraging habitat for the monarch butterfly (native prairie) is present within the Project Area, this species is likely to occur within the Project Area. As discussed in Item 7, climate change is anticipated to result in increasing temperatures, which may increase the number of days and the area in which monarch butterfly populations would be exposed to unsuitably high temperatures. This can result in them using up fat stores too quickly at their overwintering sites and may result in them incorrectly judging when to enter and exit states of dormancy (The Wildlife Society 2019)[62].

Invasive species

Noxious weeds and invasive species in Minnesota are managed through the MDA under Minnesota Statutes Section 18.78, the MDNR, and local ordinances. Best management practices (BMPs) during construction activities and operation within the Project Area should be implemented to minimize the introduction or spread of noxious weeds and invasive species. These practices include cleaning vehicles and equipment of mud and dirt from other construction areas, removing seeds that attach to clothing or equipment, minimizing soil disturbance, not moving potentially contaminated materials between sites, and staying on designated roads/trails (USDA undated[63], MDNR 2023b[64]). Additionally, Zavoral reports that they carry out weed management practices as deemed necessary.

d. Identify measures that will be taken to avoid, minimize, or mitigate the adverse effects to fish, wildlife, plant communities, ecosystems, and sensitive ecological resources.

Sightings of any rare species during construction activities would be reported to the MDNR Nongame Wildlife specialist. Zavoral would follow the guidance that is received to avoid impacts. Other avoidance and minimization measures would include dust control (see Item 17), the SWPP and BMPs for erosion and sediment management/control (SWPP and BMPs described in Item 12.b.ii.).

15. Historic Properties

Describe any historic structures, archeological sites, and/or traditional cultural properties on or inclose proximity to the site. Include: 1) historic designations, 2) known artifact areas, and 3) architectural features. Attach letter received from the State Historic Preservation Office (SHPO). Discuss any anticipated effects to historic properties during project construction and operation. Identify measures that will be taken to avoid, minimize, or mitigate adverse effects to historic properties.

The Minnesota State Historic Preservation Office (SHPO) database review was completed on July 21, 2023. Refer to Appendix E for record of SHPO Query request and response. No previously recorded sites are within the Project Area; two previously identified archaeological sites were identified within one mile of the Project Area. No previously identified historic resources were

[62] The Wildlife Society. 2019. Watch: Temperature drives internal clock for monarchs. Available at: https://wildlife.org/watch-temperature-drives-internal-clock-for-monarchs/. Accessed September 2022.
[63] USDA. National Invasive Species Information Center. Undated. Best Management Practices. Available at: https://www.invasivespeciesinfo.gov/subject/best-management-practices. Accessed January 2023.
[64] MDNR. 2023b. Terrestrial invasive species. Available at: https://www.dnr.state.mn.us/invasives/terrestrial/index.html. Accessed January 2023.

found during the review. If any undocumented archaeological items are found during development of the mining areas, Zavoral would stop work, consult with Stantec, who would then consult with SHPO prior to continuing with work.

16. Visual

Describe any scenic views or vistas on or near the project site. Describe any project related visual effects such as vapor plumes or glare from intense lights. Discuss the potential visual effects fromthe project. Identify any measures to avoid, minimize, or mitigate visual effects.

The Project is not within an area of scenic views or vistas.

This Project would be located in an area that is already used for aggregate mining. Visual effects from the Project would include the aggregate mining, vehicles and mobile equipment (including Hot Mix Asphalt Plant) circulating within the Project Area, and vehicles traveling to/from the operation. Topsoil stripped to access the targeted aggregate resource would be segregated and utilized for berms, that would act as visual screening for the Project. The Project would not result in degradation of views within viewshed surrounding the Project Area.

17. Air

a. Stationary source emissions - Describe the type, sources, quantities and compositions of any emissions from stationary sources such as boilers or exhaust stacks. Include any hazardous air pollutants, criteria pollutants. Discuss effects to air quality including any sensitive receptors, human health or applicable regulatory criteria. Include a discussion of any methods used assess the project's effect on air quality and the results of that assessment. Identify pollution control equipment and other measures that will be taken to avoid, minimize, or mitigate adverse effectsfrom stationary source emissions.

No stationary source air emissions would occur as a part of the Project.

b. Vehicle emissions - Describe the effect of the project's traffic generation on air emissions. Discuss the project's vehicle-related emissions effect on air quality. Identify measures (e.g. traffic operational improvements, diesel idling minimization plan) that will be taken to minimizeor mitigate vehicle-related emissions.

Nonmetallic mineral operations such as this aggregate mining Project can be a source of particulate matter (PM) and fugitive dust due to the process of opening up new areas to access the targeted aggregate resource and vehicle/equipment circulation on unpaved surfaces. Mining activities may also generate minor emissions from operation of diesel combustion engines and heaters including sulfur oxides (SOx), nitrogen oxides (NOx), volatile organic compounds (VOCs), and carbon monoxide (CO). Note: the Proposed Project would not involve the use of heaters.

The Project Area is not located within a CO or PM maintenance or non-attainment area. Existing traffic in the Project Area is minimal consisting of approximately one truck and two to four employee vehicles per day. It is not anticipated that Project activities would increase air emissions or degrade air quality.

No additional measures have been developed or are planned to minimize or mitigate vehicle emissions.

c. ***Dust and odors - Describe sources, characteristics, duration, quantities, and intensity of dust andodors generated during project construction and operation. (Fugitive dust may be discussed under item 17a). Discuss the effect of dust and odors in the vicinity of the project including nearby sensitive receptors and quality of life. Identify measures that will be taken to minimize ormitigate the effects of dust and odors.***

Traffic and operations would generate dust on the Project. Zavoral has made significant efforts, since taking over control of the operation, to reduce dust occurrences that lead to public concern and complaint. The generated dust would be similar to other aggregate mining operations within the area and long-term impacts are not anticipated from these activities. Pursuant to the conditions of the existing air permit, the Proposer must comply with the requirements of Minn. R. 7011.0150 requiring that all reasonable measures are taken to prevent avoidable amounts of particulate matter from becoming airborne. Given the rural setting; conflicts with neighboring properties are not expected. Water, including water bars on equipment, may be used to suppress dust in the Project Area during particular times of the year when there is an increase fugitive dust. Water management, in conjunction with the application of calcium chloride on the county haul road, (required by the Clay County Interim Use Permit when Hot Mix Asphalt production is ongoing), would be utilized to minimize the creation of dust in the Project Area. Zavoral is also committed to monitoring dust conditions relative to weather conditions and modifying activities to reduce dust. It is not anticipated that odors would be an issue.

18. Greenhouse Gas (GHG) Emissions/Carbon Footprint

a. ***GHG Quantification: For all proposed projects, provide quantification and discussion of project GHG emissions. Include additional rows in the tables as necessary to provide project-specific emission sources. Describe the methods used to quantify emissions. If calculation methods are not readily available to quantify GHG emissions for a source, describe the process used to cometo that conclusion and any GHG emission sources not included in the total calculation*.**

The GHG emissions for the Project were calculated based on the methodologies for developing a carbon footprint described in Minnesota Environmental Quality Board's (EQB's) Revised EAW Guidance (January 2022). Table 16 shows the emission categories for Project carbon footprint calculations, as provided in the EQB Guidance.

Table 16. Emission Categories for Carbon Footprint

Category	Scope	Project Phase	Type of Emission
Direct Emissions	Scope 1	Operations	Combustion (Stationary, Area, Mobile Sources)
	Scope 1	Operations	Non-Combustion Processes
	Scope 1	Construction	Combustion (Mobile Sources)
	Scope 1	Construction	Land-Use
Indirect Emissions	Scope 2	Operations	Off-site Electricity/Steam Production (Market-Based and Location-Based)
	Scope 3	Operations	Off-site Waste Management
Atmospheric Removal of GHGs	Scope 1 (Sinks)	Construction/Operations	Land-Use (CO2 removals to terrestrial storage)

For the expansion, the only GHG emissions would be from mobile sources performing mining operations. The Project would extract and stockpile material, and once per year mobile crushers would come in and operate for about three to four weeks. It is anticipated that the equipment forces needed for the existing mining and the post-expansion mining would remain the same.

There are no stationary combustion units at the mine. The area to be mined in the expansion is currently used for haying and is not an active row crop agricultural area. The change in land use from a haying area to the mine would not change GHG emissions/sequestration associated with land use. There is no permanent electricity onsite or off-site waste management.

A summary of GHG emissions from mobile sources at the mine is provided in Table 17. Emissions are presented in tons per year of carbon dioxide equivalent (CO_2e), which takes into account each GHG's global warming potential (GWP). Emissions were calculated using the U.S. EPA's Simplified Greenhouse Gas Emissions Calculator (SGEC) tool. Detailed emission calculations are provided in Appendix F.

Table 17. GHG Emissions Summary (CO2e in short tons per year)

Scope	Source	GHG Emissions (ton/year of CO_2e)
Scope 1	Operations – Gasoline Mobile Sources	3
Scope 1	Operations – Diesel Mobile Sources	116
TOTAL		119

b. GHG Assessment

i. Describe any mitigation considered to reduce the project's GHG emissions.

GHG emissions from the Project are low when compared to the MPCA's major source threshold of 100,000 tons per year of CO_2e. Possible mitigation strategies to help further reduce emissions include minimizing engine idling time and performing recommended maintenance on the mining equipment.

ii. Describe and quantify reductions from selected mitigation, if proposed to reduce the project's GHG emissions. Explain why the selected mitigation was preferred.

The Project's emissions are already low compared to the MPCA's major source threshold. Minor adjustments to daily practices would be simple to put into practice and only further reduce the already low emissions.

iii. Quantify the proposed projects predicted net lifetime GHG emissions (total tons/#of years) and how those predicted emissions may affect achievement of the Minnesota Next Generation Energy Act goals and/or other more stringent state or local GHG reduction goals.

Net Lifetime GHG Emissions and Effect on State and Local Emissions Goals

Facility personnel anticipates that the expansion area would allow for another four years of gravel mining. Thus, the lifetime emissions associated with the Project are approximately 476 tons of CO_2e. This represents a very small amount when compared to state-wide GHG emissions and would have minimal effect on the State of Minnesota's or the local area's GHG reduction goals.

19. Noise

Describe sources, characteristics, duration, quantities, and intensity of noise generated during project construction and operation. Discuss the effect of noise in the vicinity of the project including 1) existing noise levels/sources in the area, 2) nearby sensitive receptors, 3) conformance to state noise standards, and 4) quality of life. Identify measures that will be taken to minimize or mitigate the effects of noise.

1) *Existing noise levels/sources in the area*

Large machinery and vehicles would be used in the expanded mine, similar to current operations. Bulldozers and excavators are required to extract the aggregate. Thereafter, conveyors systems, crushing and screening are utilized. Similar activity occurs at nearby aggregate operations.

2) *Nearby sensitive receptors*

There are no known sensitive receptors near the Project Area.

3) *Conformance to State noise standards*

Minnesota's noise pollution rules[65] are based on statistical calculations that quantify noise levels over a one-hour monitoring period. The L_{10} calculation is the noise level that is exceeded for 10 percent, or 6 minutes, of the hour, and the L_{50} calculation is the noise level exceeded for 50 percent, or 30 minutes, of the hour. There is no limit on maximum noise.

[65]More information on Minnesota Noise rules, Minn. Rules Ch. 7030, may be found at: https://www.pca.state.mn.us/sites/default/files/p-gen6-01.pdf

The statutory limits for a residential location are L_{10} = 65 dBA and L_{50} = 60 dBA during the daytime (7:00 a.m. – 10:00 p.m.) and L_{10} = 55 dBA and L_{50} = 50 dBA during the nighttime (10:00 p.m. – 7:00 a.m.). This means that during the one-hour period of monitoring, daytime noise levels cannot exceed 65 dBA for more than 10 percent of the time or 60 dBA more than 50 percent of the time.

Table 18. Noise Area Classifications

Noise Area Classification	Common land use associated with the Noise Area Classification	Daytime (dBA)		Nighttime (dBA)	
		L_{10}	L_{50}	L_{10}	L_{50}
1	Residential housing, religious activities, camping and picnicking areas, health services, hotels, educational services	65	60	55	50
2	Retail, business and government services, recreational activities, transit passenger terminals	70	65	70	65
3	Manufacturing, fairgrounds and amusement parks, agricultural and forestry activities	80	75	80	75

Noise area classifications (NAC) are based on the land use at the location of the person who hears the noise, which does not always correspond with the zoning for an area. Therefore, noise from an industrial facility near a residential area is held to the NAC 1 standards if it can be heard on a residential property.

By state law, gravel pit operations must comply with state noise standards. Zavoral does not anticipate increased noise from the proposed expansion.

4) *Quality of life*

The expansion of the gravel pit is not anticipated to emit more noise than currently emitted, that would exceed noise levels associated with the existing operation. Topsoil berms created by the Project would provide noise buffering. Additionally, excavation of the gravel pit would create a natural berm around the perimeter of the gravel pit, which would provide a noise barrier. The Project would maintain a minimum mining setback of 500-foot buffer from rural residences and a 100-foot buffer around the Project Area perimeter. Operation and construction of the Project would generate noise consistent with industrial uses. The Project would comply with state and local noise standards. Impacts to human health or quality of life are not anticipated.

20. Transportation

a. Describe traffic-related aspects of project construction and operation. Include: 1) existing and proposed additional parking spaces, 2) estimated total average daily traffic generated, 3) estimated maximum peak hour traffic generated and time of occurrence, 4) indicate source of trip generation rates used in the estimates, and 5) availability of transit and/or other alternativetransportation modes.

1) Existing and proposed additional parking spaces.

No formal parking spaces are present near the Project Area. No parking spaces are proposed as part of the Project.

2) Estimated total average daily traffic generated.

Approximately two to four employee vehicles would travel to/from the Project Area per day. The following estimates have been developed for gravel and Hot Mix Asphalt trips.

Gravel:

- During operation ~ (20,000 tons/year)
  - Estimated Average Truck Trips/day: 110
  - Average Yearly Duration: 8 days

Hot Mix Asphalt:

- During operation ~ 70,000 tons/year
  - Estimated Average Truck Trips/day: 145
  - Average Yearly Duration: 21 days
  - Estimate Peak Truck Trips/Day: 215

Note: Typically, the gravel and Hot Mix Asphalt operations due not occur simultaneously.

No changes in access to the existing gravel pit are proposed as part of this Project.

3) Estimated maximum peak hour traffic generated and time of occurrence.

Truck traffic varies. Mining/crushing is permitted from March 1 through December 30, Monday through Saturday 6:00 a.m. to 8:00 p.m. A request can be placed with the county for Sundays as well. The Interim Use Permit with the county allows for Hot Mix Asphalt batching/deliveries between May 15 to October 31, Monday through Saturday, 6:00 a.m. to 8:00 p.m. Sundays and/or additional daily hours are possible through request with the county. Delivery trucks enter and exit the Project Area throughout the day (Monday through Friday), from April through November during operational hours from 6:00 a.m. to 6:00 p.m. The gravel pit is not in operation during the winter season (December through March).

4) Indicate source of trip generation rates used in the estimates.

Traffic generation estimates are based on the current number of employees and trucks accessing the existing operation. There is no anticipated change with the Project.

5) Availability of transit and/or other alternative transportation modes

No transit and/or other alternative transportation facilities are available within the vicinity of the Project Area.

b. Discuss the effect on traffic congestion on affected roads and describe any traffic improvementsnecessary. The analysis must discuss the project's impact on the regional transportation system.If the peak hour traffic generated exceeds 250 vehicles or the total daily trips exceeds 2,500, a traffic impact study must be prepared as part of the EAW. Use the format and procedures described in the Minnesota Department of Transportation's Access Management Manual, Chapter 5 (available at: http://www.dot.state.mn.us/accessmanagement/resources.html) or a similar local guidance.

The majority of traffic to and from the Project Area would be utilizing the single site access point from the operation onto County Road 27/200th Street. Vehicles traveling to and from the site would likely use State Highway 9 to the west (approximately 7.2 miles to the west) or State Highway 32 to the east (approximately 7.7 miles to the east); however, origin/destination of vehicles would allow the vehicles to use a number of different state highway and county road options.

The Project would not exceed the daily peak hour vehicle or total daily trips; however, the Project would contribute to an increased influx of haul-traffic to the area. It is not anticipated that the Project would negatively impact existing traffic flows or cause congestion on local roadways. Clay County Highway Department *Spring Load Restrictions* (2022) maps are provided as Appendix G.

Additionally, vehicle operators are encouraged by Zavoral to observe the suggested speed limit of 30 miles per hour and where appropriate, vehicle operators are reminded of the speed limits to avoid public concerns about safety.

c. Identify measures that will be taken to minimize or mitigate project related transportation effects.

The current access point into the Project Area was selected to allow optimal visibility for vehicles traveling along County Road 27/200th Street or entering/exiting County Road 27/200th Street at the operations access point. No additional mitigation measures are proposed.

21. Cumulative Potential Effects

(Preparers can leave this item blank if cumulative potential effects areaddressed under the applicable EAW Items)

a. Describe the geographic scales and timeframes of the project related environmental effects that could combine with other environmental effects resulting in cumulative potential effects.

The Project is the expansion (approximately 14.4 acres) to an existing gravel mine (approximately 36.4 acres), that has been in continuation operation since 2014 (2014 -2020 operation by others). The expansion is limited to opening up additional land for extraction. No new buildings or structures, processes, access points or otherwise are planned as a part of the Project. As provided in the Project Description, the expansion area would be open in a phased manner and as needed. The existing mining area has another seven to eight years of resource.

b. Describe any reasonably foreseeable future projects (for which a basis of expectation has been laid) that may interact with environmental effects of the proposed project within the geographicscales and timeframes identified above.

There are no reasonably foreseeable future projects planned near the Project. Land adjacent to the Project Area is in perpetual conservation easement through The Nature Conservancy and is not anticipated to be developed in the foreseeable future. The potential for other aggregate mines and/or vacant/agricultural land to be developed in the foreseeable future cannot be reasonably projected at this time.

c. Discuss the nature of the cumulative potential effects and summarize any other available information relevant to determining whether there is potential for significant environmental

effects due to these cumulative effects.

Based on the information obtained, it was concluded that there are no reasonably foreseeable future projects planned in the Project Area. There are five other existing, nonmetallic mining/extraction operations located within three miles of the Project Area. The project-related environmental effects are described below:

Cover Type Alteration: The area surrounding the Project Area is primarily agricultural with minimal tree canopy, except along water bodies. Extraction however causes existing vegetation (e.g., grass) to be replaced with a pit, where water then collects. The county and state regulatory review would likely be triggered if there were significant potential for environmental, cover type-related effects associated with future projects.

Land Use: The Clay County 2045 Comprehensive Plan identifies the critical need for building and construction materials (i.e., aggregate) that can be met by the county's resources; however, agricultural land is removed from potential production once the aggregate is mined and there is a pit left behind. Clay County, local townships and watershed districts guide development through comprehensive planning, local ordinances, and permitting requirements and regulate future development and protect agricultural land from future development as appropriate. With the county serving as the authority for land use and zoning, the county would continue to consider and review the potential for environmental effects that may be caused by future projects in the Project Area.

Geology/Soils: The targeted resource for the Project and the surrounding operations is aggregate. The county, in defining the overlay district, has contemplated the use of this nonrenewable resource. Reviewing an approximately 6,000-acre area surrounding the Project, the degree of aggregate mining/extraction is relatively minor, only accounting for about five percent of the acreage within that 6,000-acre area (or less than 300 acres). With the county serving as the authority for comprehensive planning, the county would continue to evaluate the county's ability to accommodate further aggregate development.

Water Appropriations: Zavoral currently holds a Water Appropriation permit with the MDNR. The other operations in the area may as well; however, part of the mechanism of the MDNR's review of those permits and their limits on withdrawal are to avoid impacts to the groundwater/aquifer system. While no reasonably foreseeable future projects were identified, if other potential future projects required water appropriation, this would be reviewed by the MDNR.

Stormwater: Stormwater travels along the ground surface in a different manner once there is a pit, post extraction. The pit serves as a collection point. This would be similar to the other operations in the area. Future developments would be required to conform to the county and MPCA's stormwater management requirements.

Fish, Wildlife, Plant Communities, and Sensitive Ecological Resources (Rare Features): There are a few species that may not already be impacted by agricultural disturbances or climate changes. The MDNR and the U.S. Fish and Wildlife Service would be the regulatory reviewer, for consideration of impacts that may be caused by future projects. Additionally, if the Project were to trigger a state or federal environmental review, this resource and potential cumulative impacts would be reviewed.

Greenhouse Gas: While no reasonably foreseeable future projects have been identified, local, state and federal environmental review and permitting would be triggered and completed where appropriate to review future projects for cumulative effects.

22. Other Potential Environmental Effects

If the project may cause any additional environmental effects not addressed by items 1 to 19, describe the effects here, discuss the how the environmentwill be affected, and identify measures that will be taken to minimize and mitigate these effects.

No other potential environmental effects are anticipated that are not addressed by Items 1 through 20.

RGU CERTIFICATION

*(The Environmental Quality Board will only accept **SIGNED** EnvironmentalAssessment Worksheets for public notice in the EQB Monitor.)*

I hereby certify that:

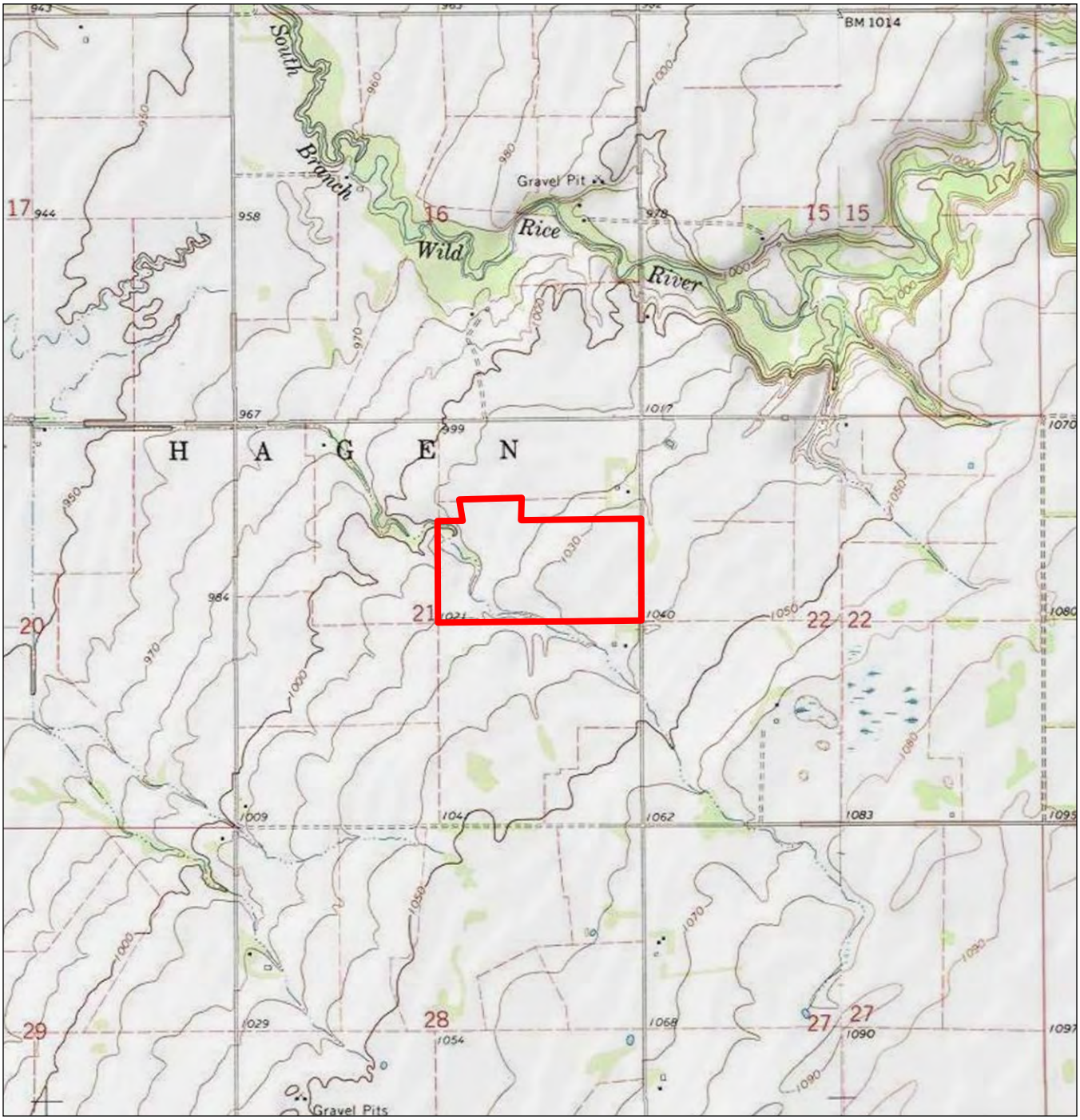
- The information contained in this document is accurate and complete to the best of myknowledge.
- The EAW describes the complete Project; there are no other projects, stages or components other than those described in this document, which are related to the Project as connected actions or phased actions, as defined at Minnesota Rules, parts 4410.0200, subparts 9c and 60,respectively.
- Copies of this EAW are being sent to the entire EQB distribution list.

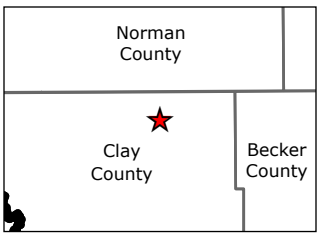
Signature Matthew Jacobson Date 12/18/2023

Title Planning Director

Appendix A

Figures





Legend

Project Area

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(At original document size of 8.5x11)
1:24,000

N

Stantec

Notes

1. Coordinate System: NAD 1983 HARN Adj MN Clay Feet
2. Data Sources: Stantec, Clay Co.
3. Background: USGS Ulen SW 7.5 Minute Quadrangle

Project Location
T142N R45W S21
Hagen, Clay Co., MN

Prepared by KJM on 2023-07-12

Client/Project
RJ Zavoral & Sons
Gravel Pit Expansion EAW

227705518

Figure No.
1

Title
Project Location USGS Topo Map

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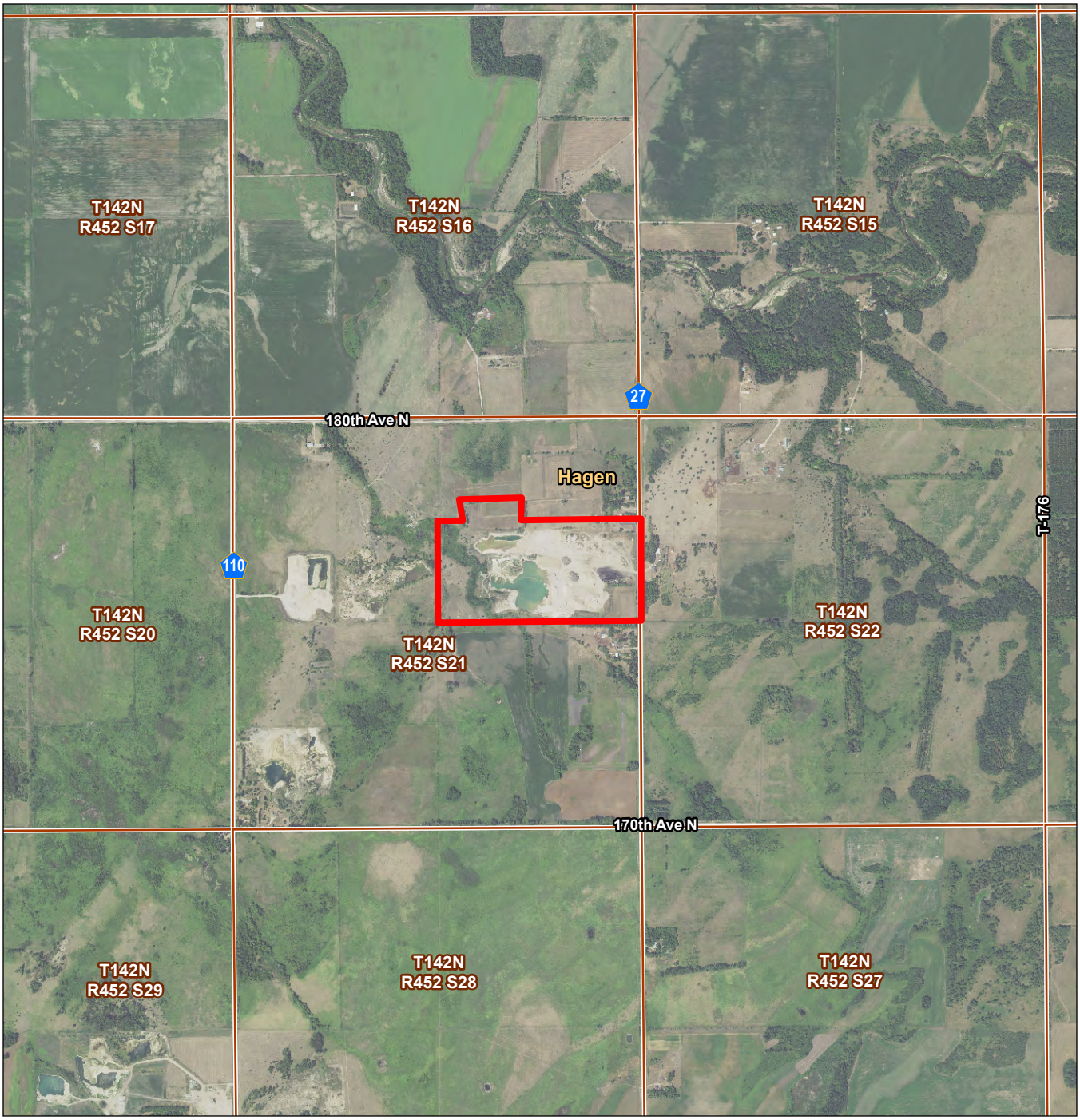

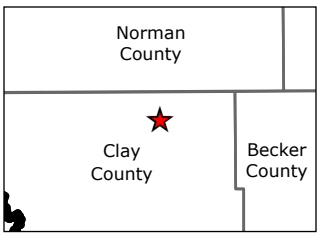

Legend

- Project Area
- PLSS Boundary

0 1,000 2,000 Feet

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Stantec

Notes

1. Coordinate System: NAD 1983 HARN Adj MN Clay Feet
2. Data Sources: Stantec, MnGeo, MnDOT
3. Background: 2021 Clay Co.

Project Location
T142N R45W S21
Hagen, Clay Co., MN

Prepared by KJM on 2023-07-12

Client/Project
RJ Zavoral & Sons
Gravel Pit Expansion EAW

227705518

Figure No.
2

Title
Project Location Aerial Map

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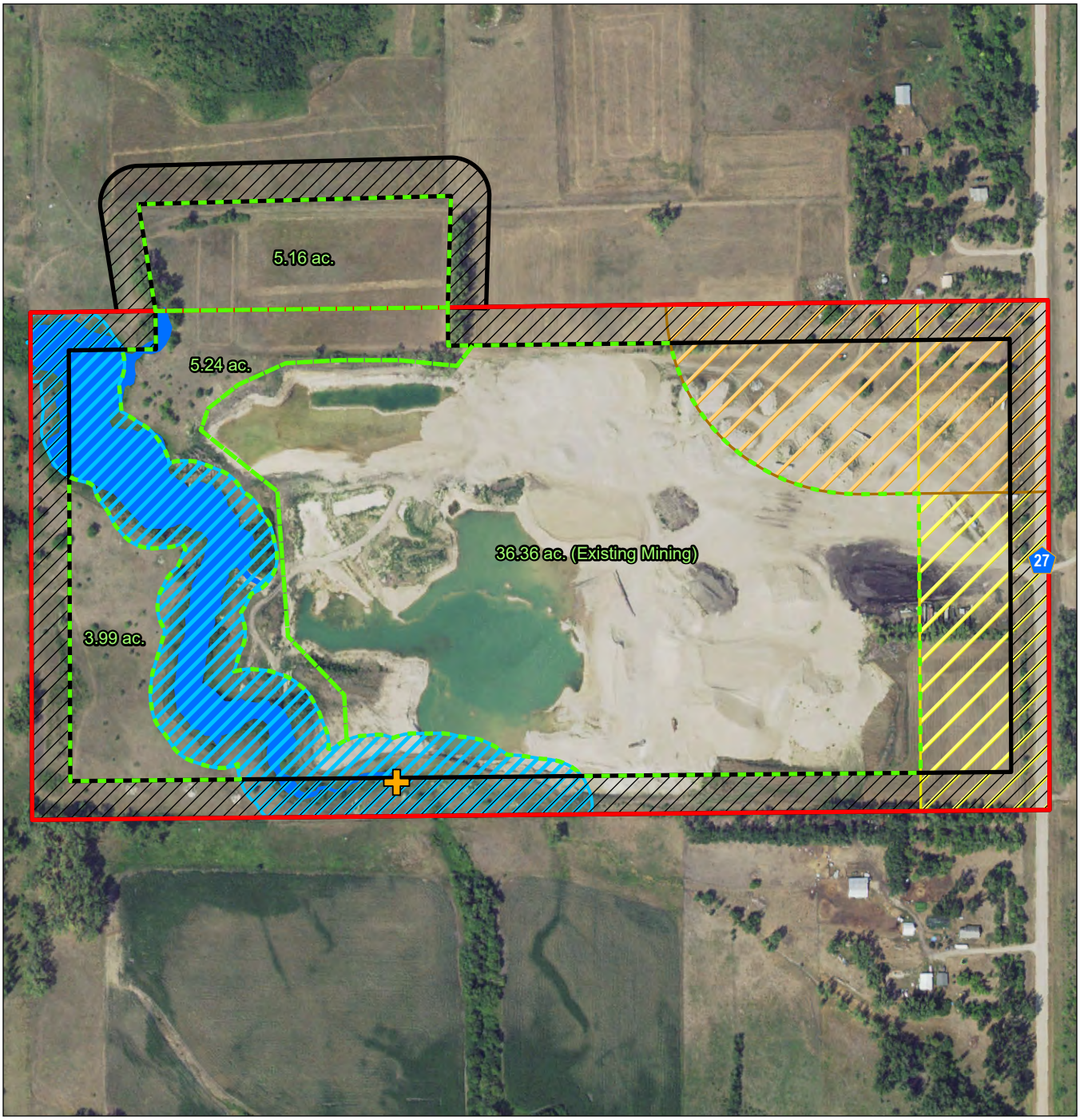

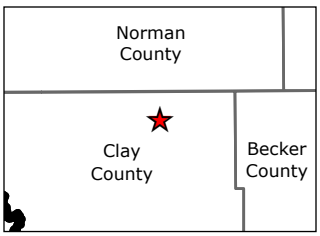

Notes
1. Coordinate System: NAD 1983 HARN Adj MN Clay Feet
2. Data Sources: Stantec, MnGeo, MnDOT
3. Background: 2021 Clay Co.

Legend
- Stream Crossing
- Existing Property Boundary
- Mining Areas

Setback Buffers and Wetlands:
- Property Boundary - 100 Feet
- Residential Prop - 500 Feet
- Road,300 Feet
- Stream OHWM - 100 Feet
- Wetland - 1

0 200 400 Feet
(At original document size of 8.5x11)
1:4,800

N

Stantec

Project Location
T142N R45W S21
Hagen, Clay Co., MN

Prepared by KJM on 2023-07-27

Client/Project
RJ Zavoral & Sons
Gravel Pit Expansion EAW

227705518

Figure No.
3

Title
Project Area and Potential Setbacks

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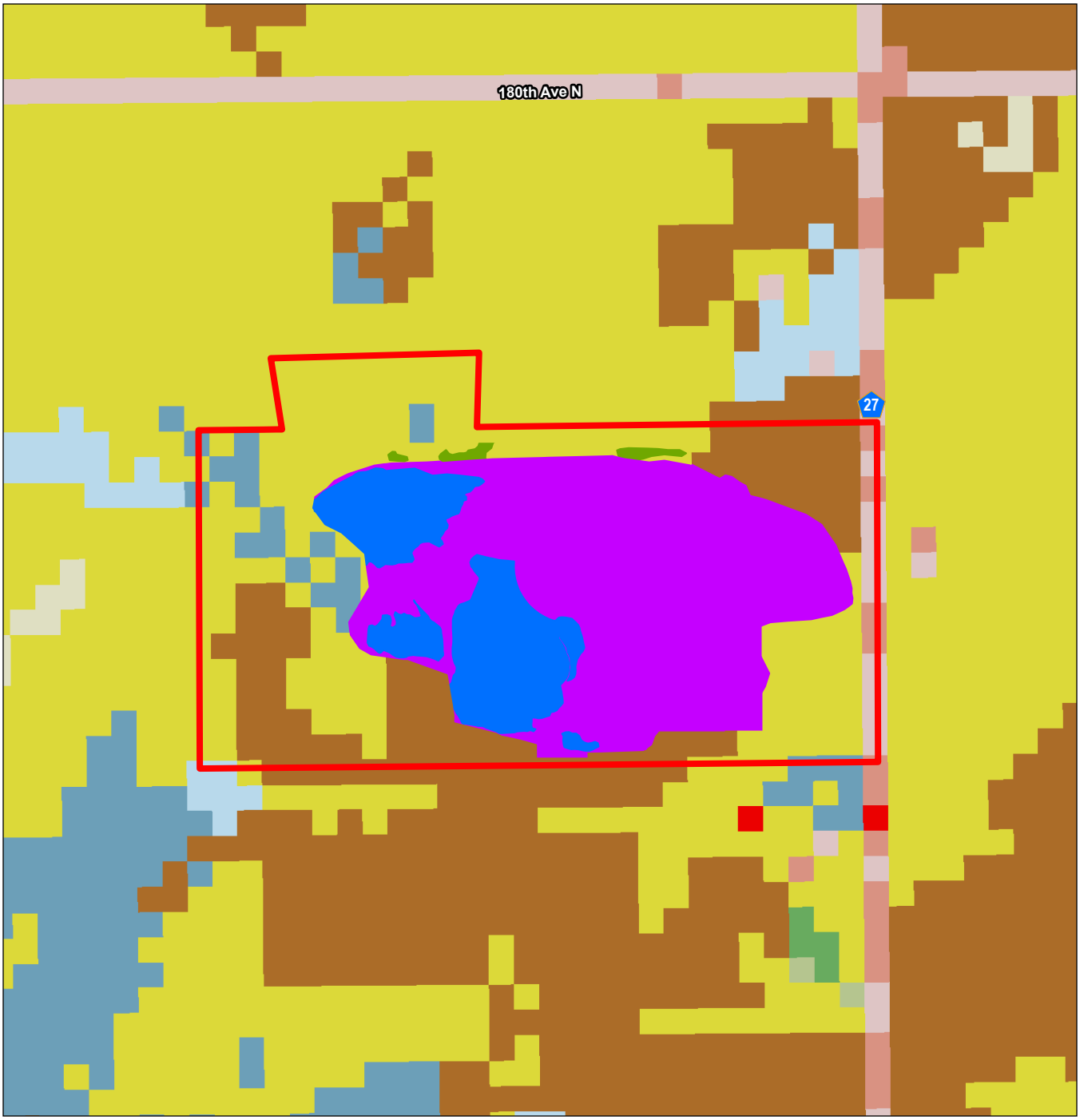
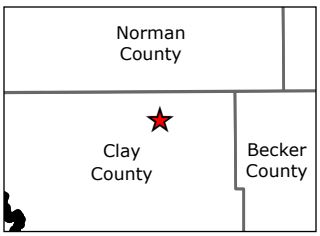




Legend

NLCD 2019 Land Cover

- Open Water
- Developed, Open Space
- Developed, Low Intensity
- Developed, Medium Intensity
- Extraction
- Deciduous Forest
- Mixed Forest
- Herbaceous
- Hay/Pasture
- Cultivated Crops
- Woody Wetlands
- Emergent Herbaceous Wetlands

*Extraction Area Digitized from 2021 Clay Co. Imagery

0 300 600 Feet

(At original document size of 8.5x11)
1:7,200

N

Stantec

Project Location
T142N R45W S21
Hagen, Clay Co., MN

Prepared by KJM on 2023-07-12

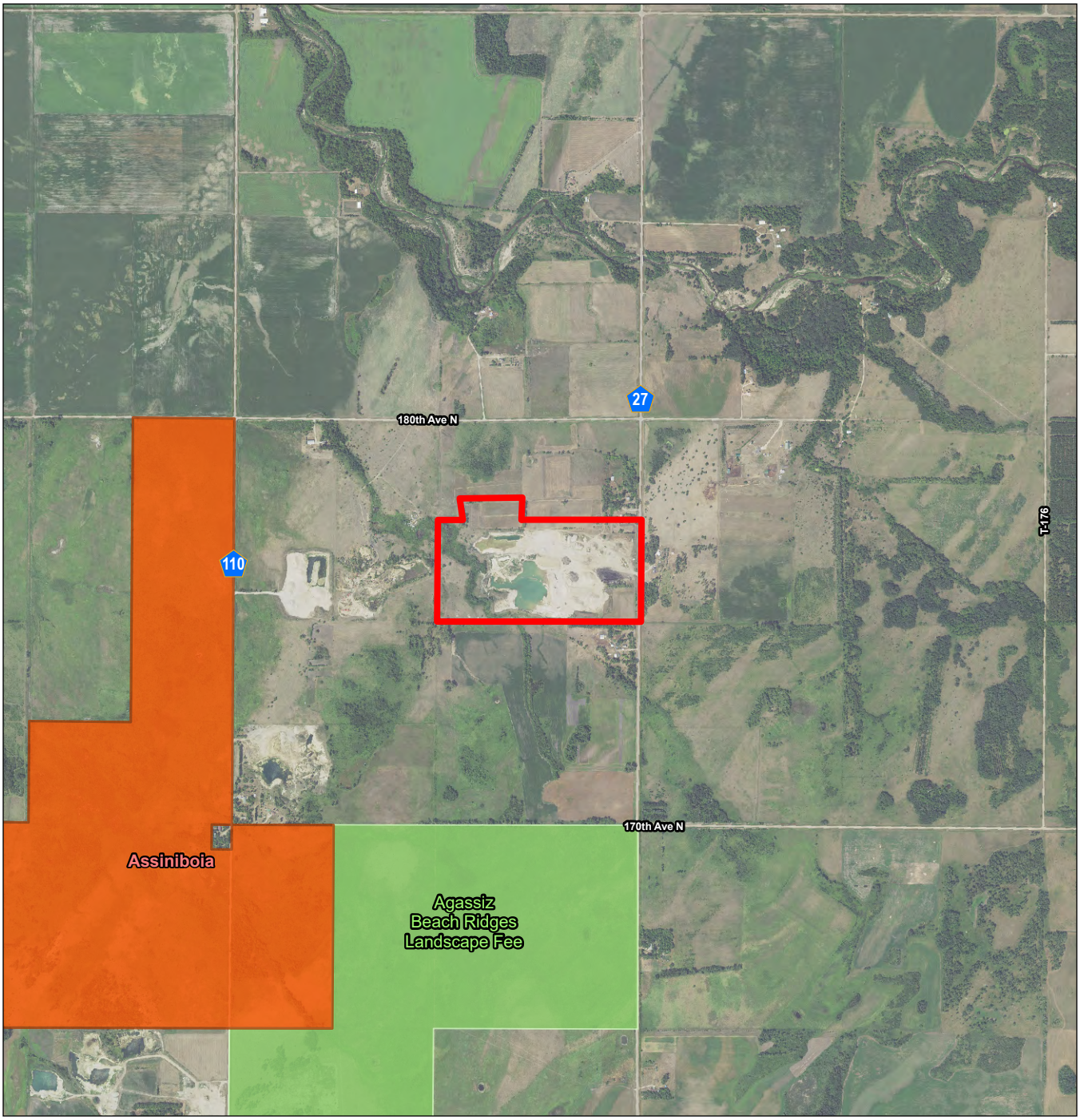
Client/Project
RJ Zavoral & Sons
Gravel Pit Expansion EAW

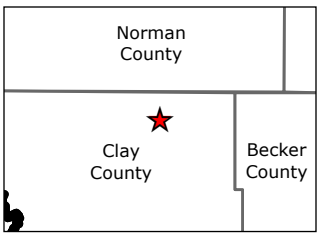
227705518

Figure No.
4

Title
Land Cover

Notes
1. Coordinate System: NAD 1983 HARN Adj MN Clay Feet
2. Data Sources: Stantec, MnGeo, MnDOT, USGS
3. Background: 2019 NLCD





Legend

- Project Area
- USGS Protected Areas Database (3.0)
  - The Nature Conservancy
- MNDNR Management Units - LRS
  - Scientific and Natural Area - SNA

0 1,000 2,000 Feet

(At original document size of 8.5x11)
1:24,000

N

Notes

1. Coordinate System: NAD 1983 HARN Adj MN Lyon Feet
2. Data Sources: Stantec, Clay Co., MnDOT, MnDNR, USGS
3. Background: 2021 Clay Co.

Stantec

Project Location
T142N R45W S21
Hagen, Clay Co., MN

Prepared by KJM on 2023-07-12

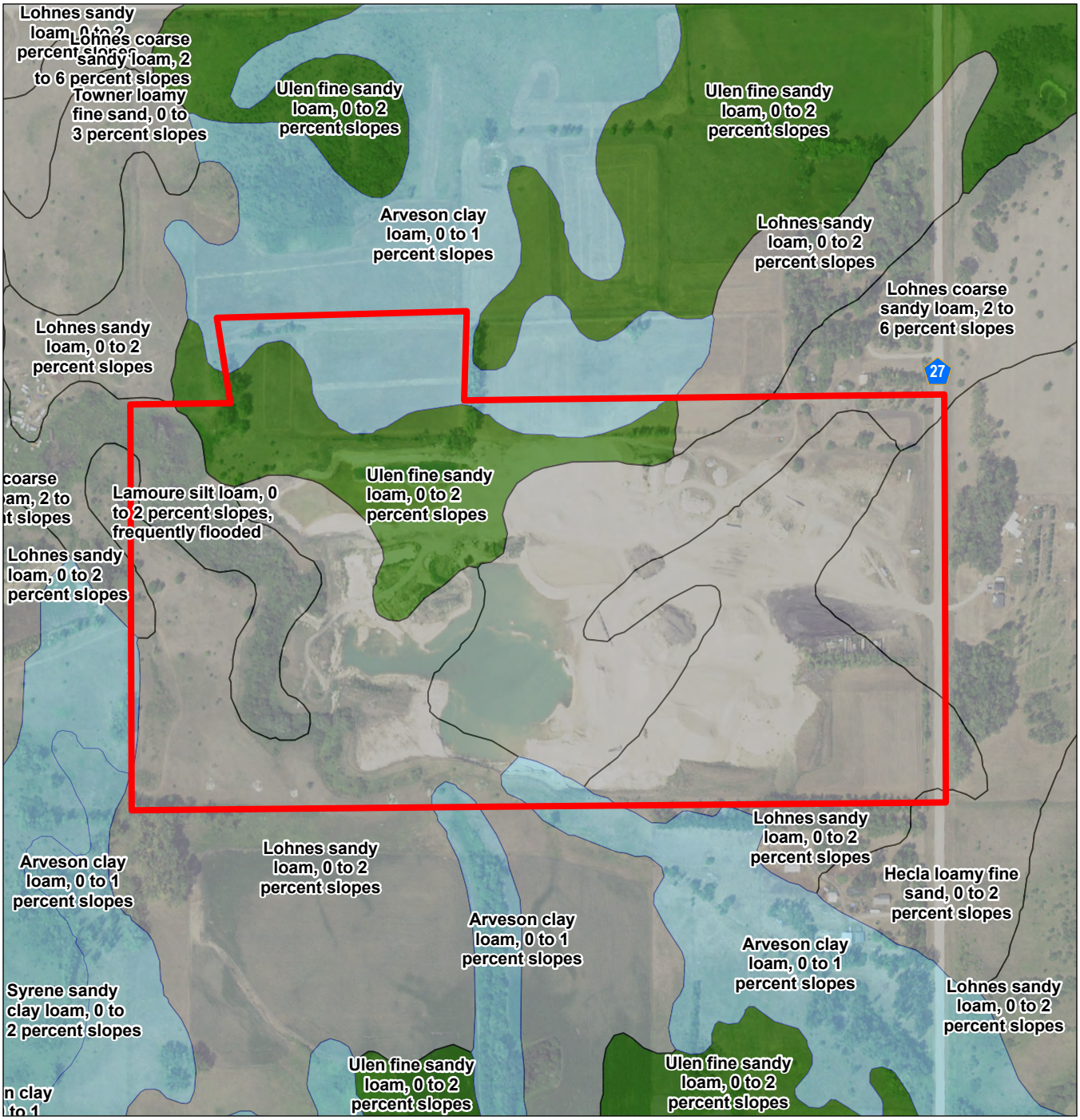
Client/Project
RJ Zavoral & Sons
Gravel Pit Expansion EAW

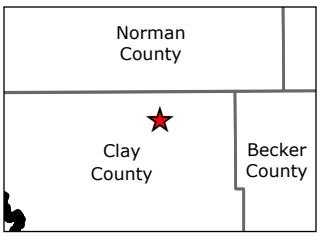
227705518

Figure No.
5

Title
Parks Trails and Other Recreational Areas

V:\227\active\227705518\03_data\gis_cad\gis\pro\eaw\eaw.aprx Revised: 2023-07-12 By: kjmueller





Legend

- Project Area

Farmland Class

- Farmland of statewide importance
- Not prime farmland
- Prime farmland if drained

0 200 400 Feet

(At original document size of 8.5x11)
1:6,000

N

Notes

1. Coordinate System: NAD 1983 HARN Adj MN Clay Feet
2. Data Sources: Stantec, MnGeo, MnDOT, NRCS
3. Background: 2021 Clay Co.

Stantec

Project Location
T142N R45W S21
Hagen, Clay Co., MN

Prepared by KJM on 2023-07-12

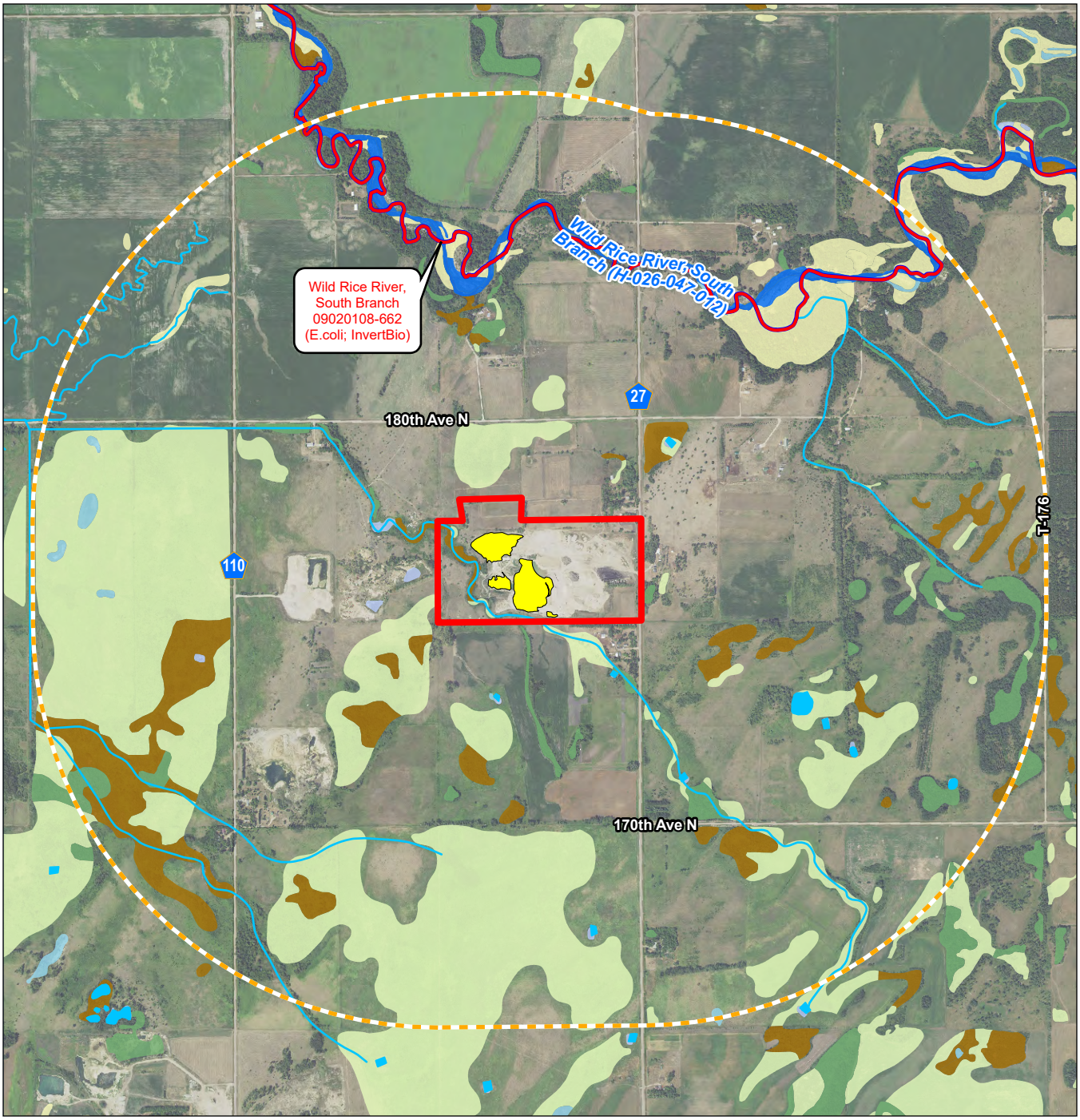
Client/Project
RJ Zavoral & Sons
Gravel Pit Expansion EAW

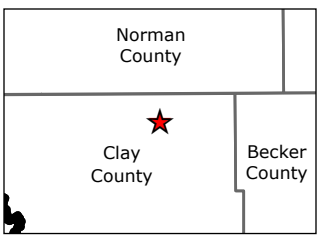
227705518

Figure No.
6

Title
Farmland and Soils Classification

V:\227\active\227705518\03_data\gis_cad\gis\pro\eaw\eaw.aprx Revised: 2023-07-12 By: kjmueller





Notes
1. Coordinate System: NAD 1983 HARN Adj MN Clay Feet
2. Data Sources: Stantec, Clay Co., MPCA, MNDNR, MNDOT
3. Background: 2021 Clay Co.

Legend

- Project Area
- 1 Mile Radius
- 2022 MPCA Impaired Streams (Draft)

Minnesota Public Waters Delineations

- Public Water Watercourse

National Hydrography Dataset

- NHD - Flowline
- NHD - Waterbody
- Incidental Lake

NWI Circular 39 Class

- 1 - Seasonally Flooded Basin or Flat
- 2 - Wet Meadow
- 3 - Shallow Marsh
- 4 - Deep Marsh
- 6 - Shrub Swamp
- 7 - Wooded Swamp
- Riverine Systems

0 1,000 2,000 Feet
(At original document size of 8.5x11)
1:24,000

N

Stantec

Project Location
T142N R45W S21
Hagen, Clay Co., MN

Prepared by KJM on 2023-07-12

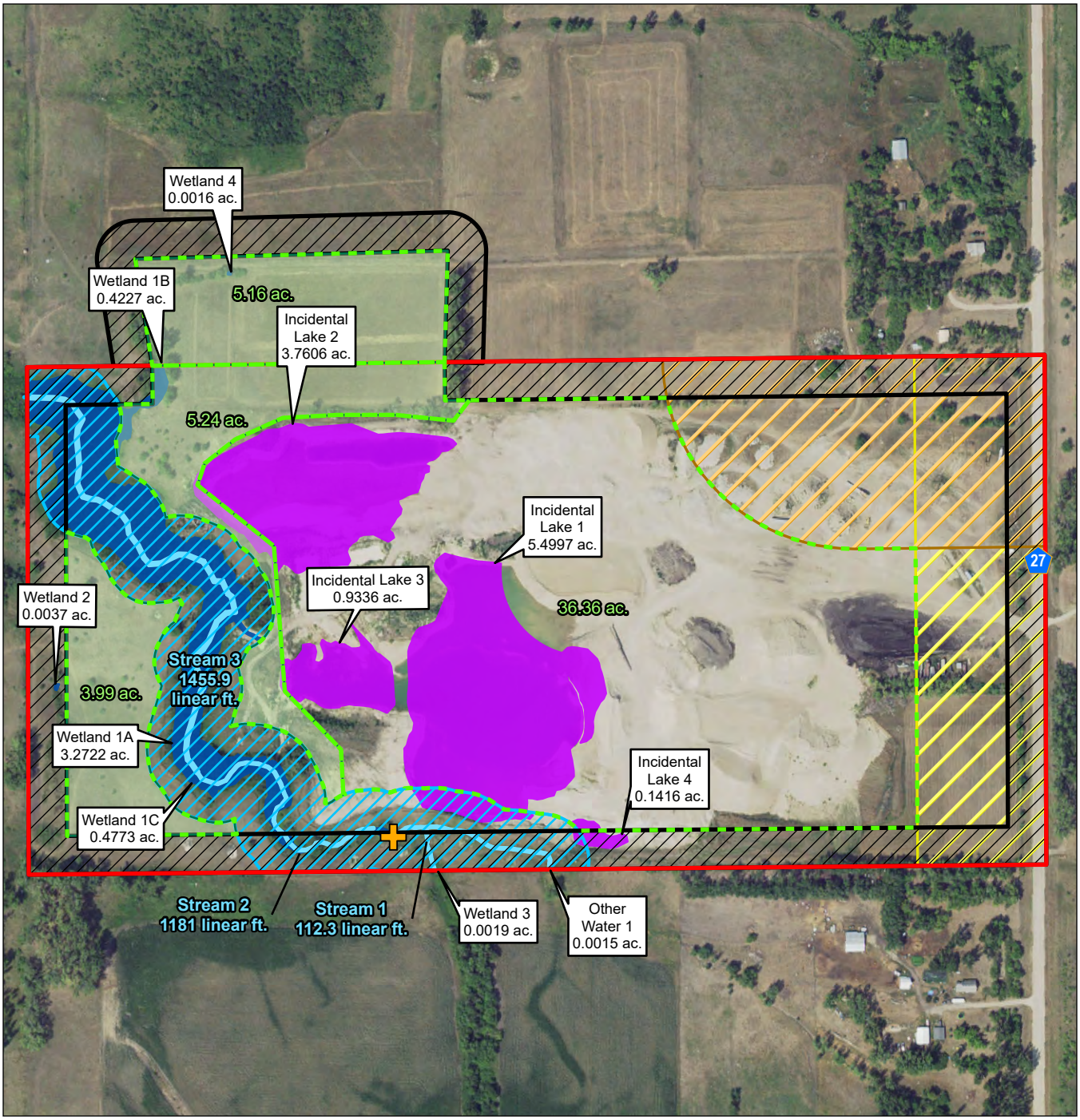
Client/Project
RJ Zavoral & Sons
Gravel Pit Expansion EAW

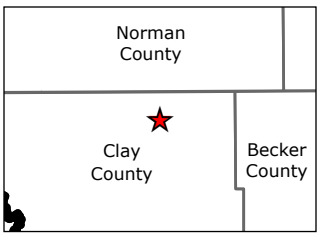
227705518

Figure No.
7

Title
Water Resources Map

V:\227\active\227705518\03_data\gis_cad\gis\proj\eaw\eaw.aprx Revised: 2023-07-12 By: kjmueller





Notes
1. Coordinate System: NAD 1983 HARN Adj MN Clay Feet
2. Data Sources: Stantec, MnGeo, MnDOT
3. Background: 2021 Clay Co.

Legend
- Stream Crossing
- Existing Property Boundary
- Mineable Area

Potential Setback Buffers
- Property Boundary - 100 Feet
- Residential Prop - 500 Feet
- Road,300 Feet
- Stream OHWM - 100 Feet

Delineated Wetland/Waterbody Data
- Linear Water Features
- Incidental Lake
- Wetland

0 200 400 Feet
(At original document size of 8.5x11)
1:4,800

N

Stantec

Project Location
T142N R45W S21
Hagen, Clay Co., MN

Prepared by KJM on 2023-10-25

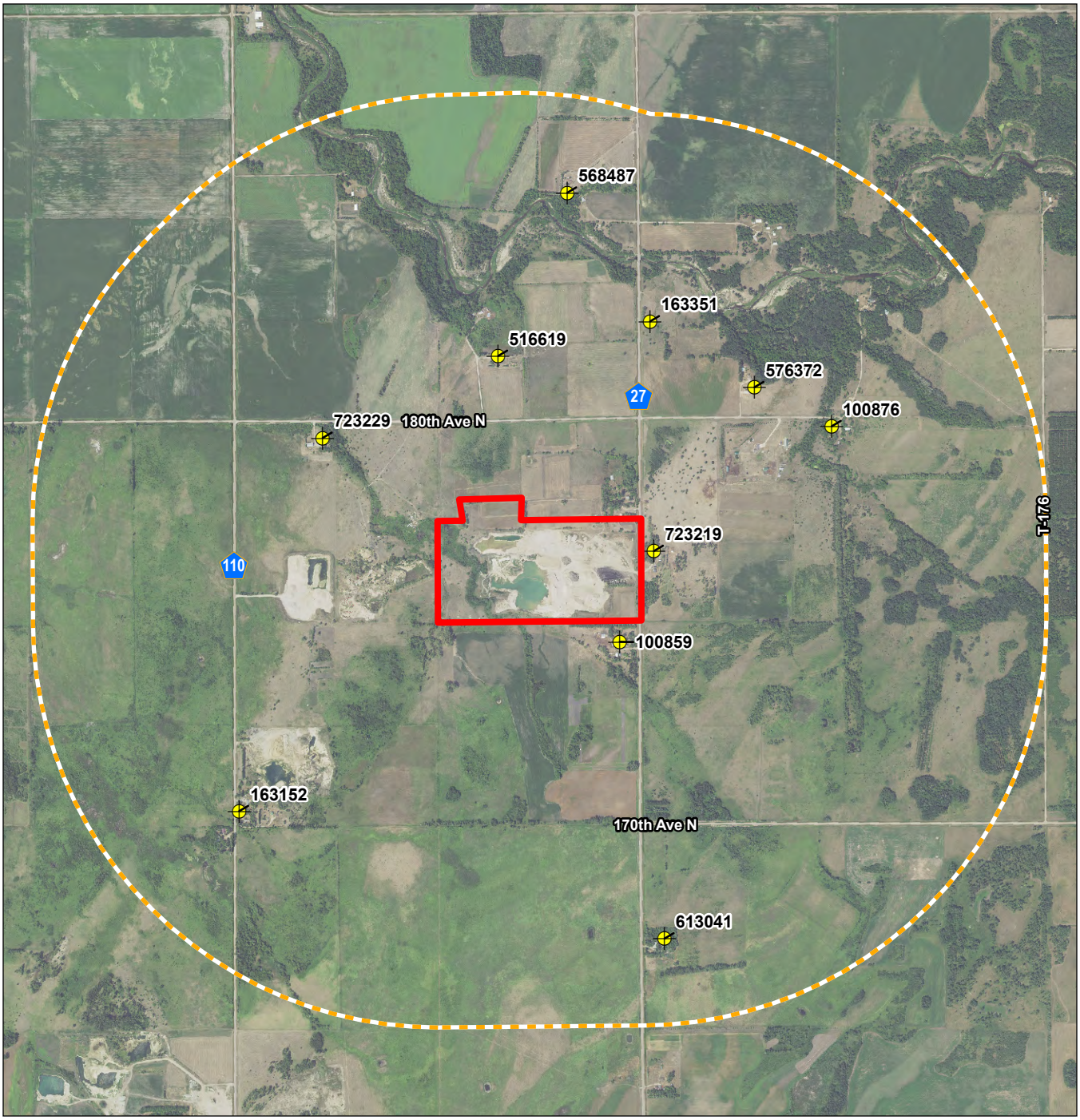
Client/Project
RJ Zavoral & Sons
Gravel Pit Expansion EAW

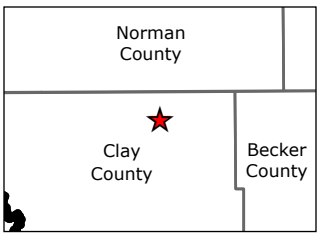
227705518

Figure No.
6b

Title
Project Area, Potential Setbacks and Wetlands/Waterbodies

V:\227\active\227705518\03_data\gis_cad\gis\pro\eaw\eaw.aprx Revised: 2023-10-25 By: kjmueller





Legend

- Project Area
- 1 Mile Radius

Field Verified Wells

- Domestic

0 1,000 2,000 Feet

(At original document size of 8.5x11)
1:24,000

N

Stantec

Notes

1. Coordinate System: NAD 1983 HARN Adj MN Clay Feet
2. Data Sources: Stantec, MnGeo, MnDOT, MDA, MGS
3. Background: 2021 Clay Co.

Project Location
T142N R45W S21
Hagen, Clay Co., MN

Prepared by KJM on 2023-07-12

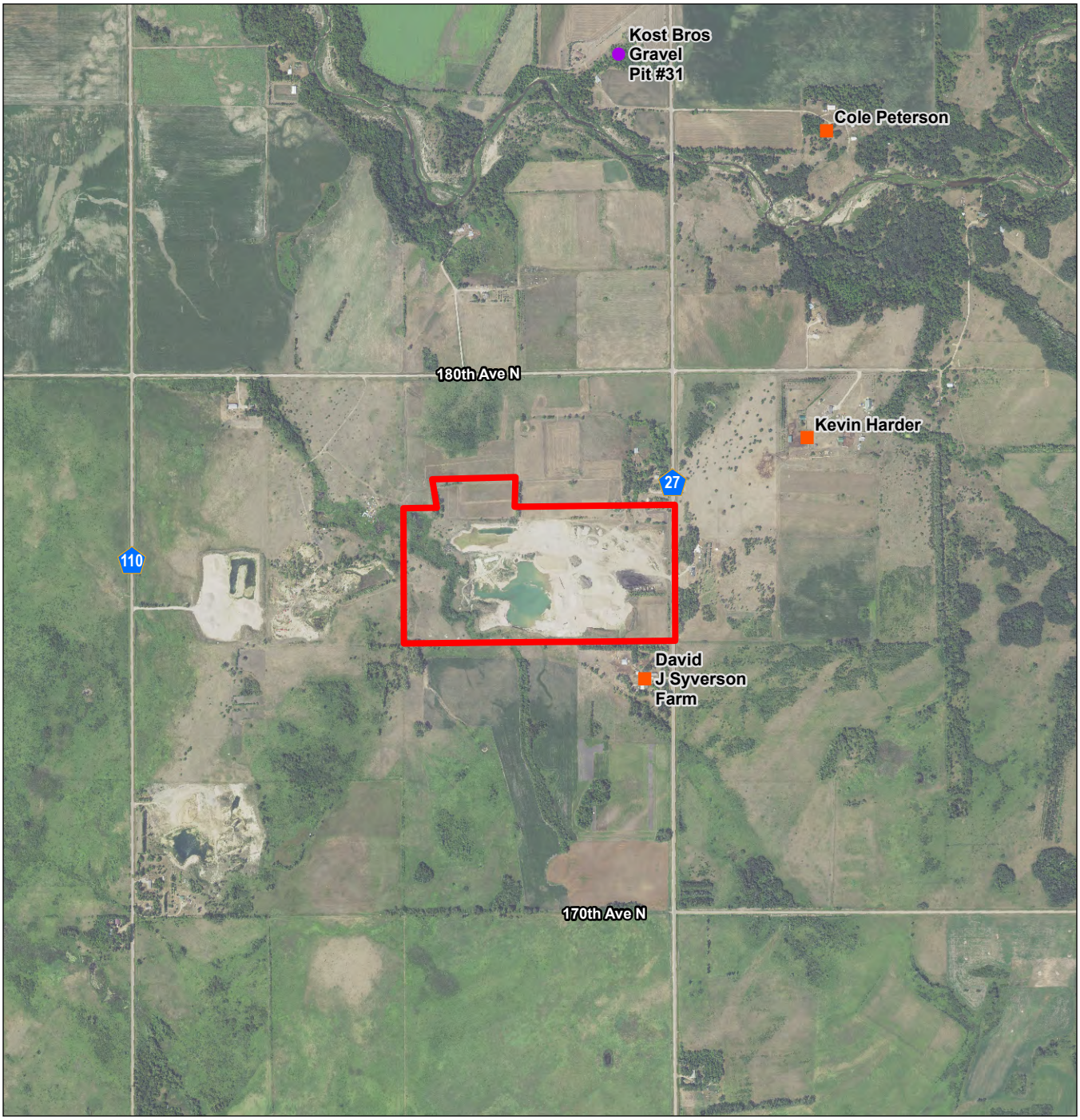
Client/Project
RJ Zavoral & Sons
Gravel Pit Expansion EAW

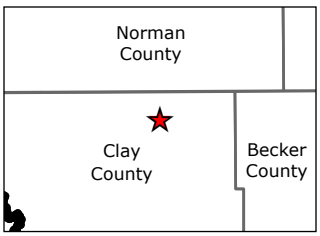
227705518

Figure No.
9

Title
Minnesota Well Index Map

V:\227\active\227705518\03_data\gis_cad\gis\proj\eaw\eaw.aprx Revised: 2023-07-12 By: kjmueller





Legend

- Project Area

MPCA Sites

Program Name

- Feedlots
- Investigation and Cleanup

0 400 800 Feet

(At original document size of 8.5x11)
1:18,000

N

Stantec

Project Location
T142N R45W S21
Hagen, Clay Co., MN

Prepared by KJM on 2023-07-12

Client/Project
RJ Zavoral & Sons
Gravel Pit Expansion EAW

227705518

Figure No.
10

Title
MPCA WIMN Potentially Contaminated Sites

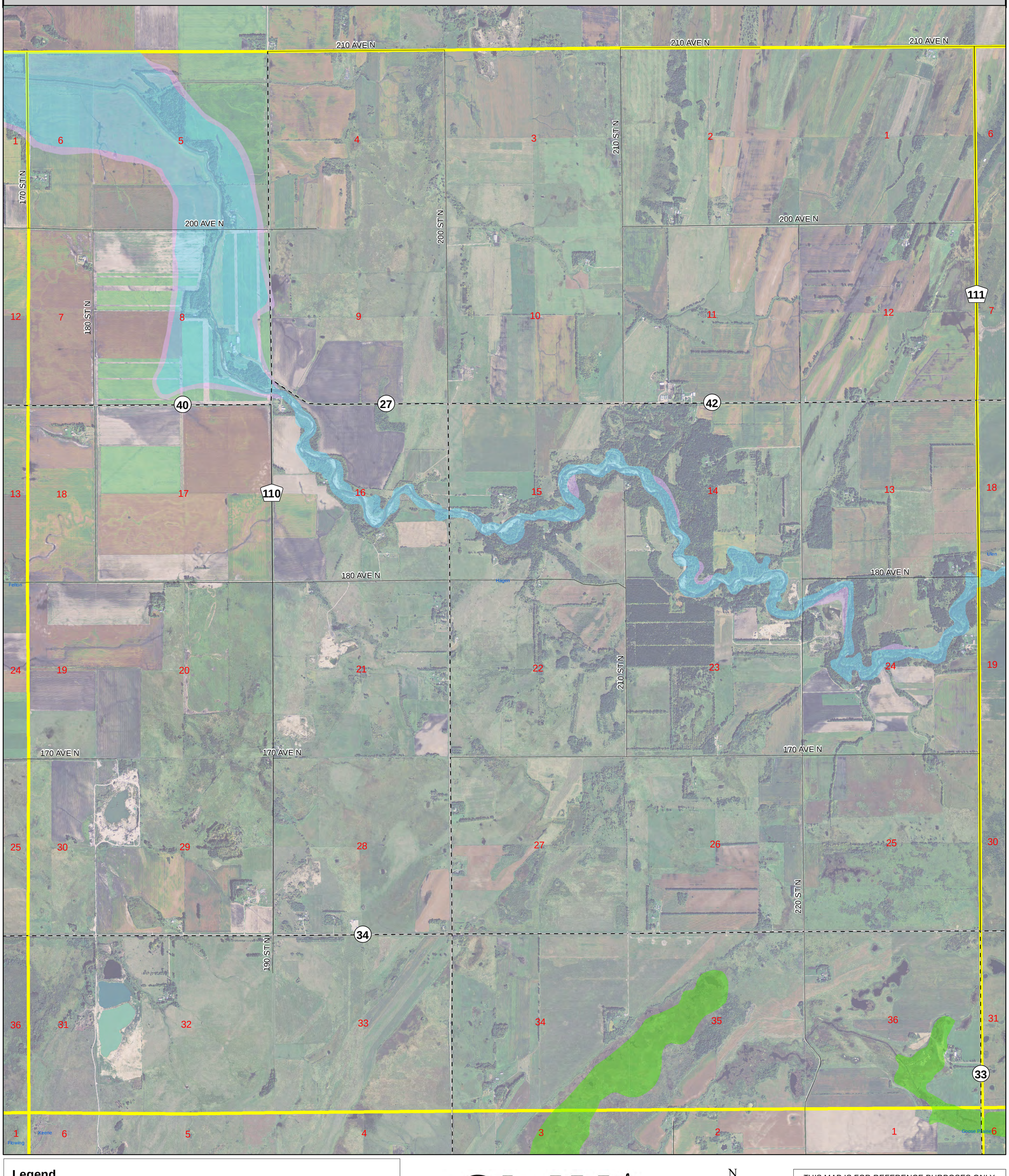
Notes
1. Coordinate System: NAD 1983 HARN Adj MN Clay Feet
2. Data Sources: Stantec, MnGeo, MnDOT, MPCA
3. Background: 2021 Clay Co.

V:\227\active\227705518\03_data\gis_cad\gis\pro\eaw\eaw.aprx Revised: 2023-07-12 By: kjmueller

Appendix B

FEMA Maps

HAGEN TOWNSHIP



Legend

- Township Roads
- US Highways
- County Highways
- County - State Highways
- State Highways
- Rail Road
- Jurisdictions

FLOODWAY

- FLOODWAY

FLOOD ZONE

- 0.2 PCT ANNUAL CHANCE FLOOD HAZARD
- A = 1 PCT ANNUAL CHANCE FLOOD HAZARD
- AE = 1 PCT ANNUAL CHANCE FLOOD HAZARD
- Sections

CLAY COUNTY

www.co.clay.mn.us

0 0.25 0.5 1 1.5 Miles

HAGEN Township FEMA FIRM Map 2012

N W E S

Clay County GIS

Effective Date: April 2012

Background Aerial Image taken August 2010.

Path: G:\Staff\Maps\Township_FEMA_FIRM_Maps_18x24_photo.mxd

National Flood Hazard Layer FIRMette

FEMA

96°23'47"W 47°6'20"N

96°23'10"W 47°5'56"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 12/27/2022 at 10:13 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Appendix C

Zavoral Pollution Prevention Plan (P2)

Pollution Prevention Plan

Site name: Green Pit (Revised 01/2023)

Site address: Section 21, Township 142N, Range 45W, Clay County, Minnesota

Pollution Prevention Plan team

List the person (or title/role) responsible for each of the following duties:

Name or title/role	Pollution Prevention Plan duties
Zach Bopp	Put together the plan
Zach Bopp	Communicate the plan to others
Jeff Brooks	Ensure compliance with the plan
Jeff Brooks	Maintain and modify the plan
Jeff Brooks	Install and maintain stormwater management methods (also called Best Management Practices)
Tracer Bowar	Conduct monthly facility inspections
Tracer Bowar	Collect stormwater samples
Tracer Bowar	Submit Discharge Monitoring Reports
Zach Bopp / Tracer Bowar	Review the plan annually for updates
	Other
	Other

Updates to Pollution Prevention Plan

Date created or modified:	Created/modified by:	Modifications made:
1/25/2022	ZLB	Changed PPP from RJZ to MPCA template.
01/2023	ZLB	Yearly update to contacts, training, exhibits, and scan inspections.

Table of contents

The Pollution Prevention Plan template is organized as follows. Page numbers will shift as you fill it out.

APPENDICES

Purpose of the Pollution Prevention Plan

The purpose of the Pollution Prevention (P2) Plan is to prevent rain, snow, snowmelt and runoff – known collectively as stormwater – from being polluted. It's also to make sure that non-stormwater discharges are managed correctly. Each site covered by your MNG49 permit needs a separate, site-specific plan.

In your plan, you'll need to:

- Identify sources of pollution or contamination (e.g. sediment, oil) at the facility.
- Select and implement best management practices (BMPs) to eliminate or reduce contact of stormwater with significant materials and non-stormwater discharges that may result in polluted runoff from the facility**.**

Instructions

- Complete the plan before you submit your application for coverage under the General Permit MNG490000. You do not need to submit your plan to the Minnesota Pollution Control Agency (MPCA, Agency). It is for use at the facility.
- Use this template to help you develop and implement a plan that addresses site-specific conditions; use discretion as not all sections may apply to your site.
- You may choose to create a plan from scratch. The best guidance for developing a P2 Plan is the permit itself. You can also refer to this template.
- Keep the plan on-site. If there is no office located on-site, electronic access of the plan is acceptable. The plan must be available to the Agency within 72 hours of a request for review.

Questions?

If you already have an MNG49 permit, contact water quality compliance and enforcement staff at 651-296-6300 or email MNG49.PCA@state.mn.us.

Unpermitted sites with questions about what type of water quality permit is needed, or how to create a P2 Plan, may call the Small Business Environmental Assistance Program at 651-282-6143 or email smallbizhelp.pca@state.mn.us.

Resources

Direct link:	**Search MPCA website** http://www.pca.state.mn.us for:
MPCA General Permit MNG490000	wq-wwprm7-33a
Site Inventory Report Form To add or remove sites from permit coverage.	wq-wwprm7-43
Permit Change Request Form To request a name change, transfer of ownership, or terminate a permit.	wq-wwprm7-01
What's In My Neighborhood Find permit and license numbers issued by the MPCA for your site.	
P2 Plan Template (this document)	wq-wwprm7-73
Industrial Stormwater Best Management Practices Guidebook The guidebook addresses requirements for MPCA's Industrial Stormwater General Permit, but descriptions of pollutants and BMPs are still helpful.	wq-strm3-26
Minnesota Stormwater Manual Portions of this guidance, especially those on sediment and erosion control practices, may be helpful.	

Direct link:	**Search MPCA website** http://www.pca.state.mn.us for:
EPA Industrial Stormwater Factsheets Describes BMPs for pollutant sources • Sector D: Asphalt Paving and Roofing Materials Manufacturers and Lubricant Manufacturers • Sector J: Mineral Mining and Processing Facilities Sector E: Glass, Clay, Cement, Concrete, and Gypsum Product Manufacturing Facilities	
Vehicle Tracking Factsheet Design and maintenance guidance for vehicle tracking pads. The factsheet is directed to Construction Stormwater Permit requirements, but is still helpful for MNG49 permittees.	wq-strm-27
Construction Stormwater Special and Impaired Waters Search Map tool to locate surface waters, impaired waters, Outstanding Resource Value Waters and trout waters near your site.	
Discharge Monitoring Reports Guidance for how to submit Discharge Monitoring Reports.	
Sampling How to collect sheet flow and grab samples and list of certified testing labs. Geared toward Industrial Stormwater Permit sampling requirements, but methods are useful.	
Aggregate Facility Compliance Calendar	p-sbap5-02
Hot Mix Asphalt Compliance Calendar	p-sbap5-05
University of Minnesota Erosion and Stormwater Management Program Employee training resource. Offers a variety of online and in-person trainings around the state to aid compliance with water regulations. Call 612-625-9733 to learn more.	
Wastewater staff by county Contact information for MPCA wastewater compliance and enforcement staff.	
Small Business Technical Assistance Program Free and confidential assistance to help you navigate environmental rules and apply for permits. Call 651-282-6143 or e-mail. smallbizhelp.pca@state.mn.us	

Materials and activities inventory

List materials handled and activities conducted at the site that can potentially pollute stormwater discharges. The assessment shall include but is not limited to the materials and activities identified below:

For item j. Chemical additives, MPCA approval is required for any additives that are new, increasing in usage, or not previously approved. See the chemical additive webpage for guidance to complete the approval process.

Materials and activities	Present on site? Yes	No	Is yes, describe:
a. Excavation	☒	☐	Sand and gravel materials are mined from the site with the use of heavy construction equipment. Equipment typically used includes crawler excavators, loaders, and production haul trucks.
b. Crushing/Screening	☒	☐	Portable crushing and screening plants will be brought on-site to process the mined material to produce aggregates for specific project needs on an as-needed basis.
c. Overburden, waste and products stockpiles	☒	☐	Overburden clay and topsoil stockpiles are present onsite.
d. Raw material and final product storage	☒	☐	Product stockpiles are expected to include sand, fine and coarse aggregate, recycled asphalt, topsoil, clay fill, and recycled concrete.
e. Waste products	☐	☒	
f. Sediment washing	☒	☐	Portable material washing units will be brought on-site periodically to wash sand material for use in HMA production.
g. Material loading/unloading	☒	☐	On-road haul trucks will be loaded with asphalt, sand, gravel, or topsoil to be delivered to the off-site projects.
h. Areas where spills and leaks may potentially contribute pollutants to stormwater	☒	☐	Periodically an asphalt plant will be mobilized and setup on-site. Plant includes additional equipment and storage tanks that will require inspection.
i. Vehicle and equipment maintenance, washing, and fueling	☒	☐	Used oil from oil changes performed on-site will be collected in leak-proof containers and recycled offsite. No detergent or chemicals will be used to wash equipment onsite.
j. Chemical additives used to treat wastewater and/or stormwater, including chemical dust suppressants	☐	☒	Name of additive: Process additive used in/for: Method of application: Frequency of application: Daily average & maximum rates of use: Date of MPCA approval:
k. Other materials or activities	☐	☒	
l. Vehicle tracking of sediment onto paved surface from the site or operation	☐	☒	

Best management practices

Background

Actions taken to reduce contact between stormwater and activities and materials that may pollute are called management methods or BMPs. Use BMPs to prevent polluted runoff at your facility.

BMPs may be non-structural (e.g. good housekeeping, moving materials indoors, silt fence) or structural (e.g. diversion berms or channels, sedimentation basins, permanent cover).

Find an introduction to Stormwater Best Management Practices, with examples of pollutants and BMPs, in the MPCA's Industrial Stormwater Best Management Practices Guidebook or in the U.S. Environmental Protection Agency (EPA's) Industrial Stormwater Factsheet for your sector.

Below are a few examples of pollutants, sources of pollutant, and BMPs.

Pollutants, sources, and BMPs

Pollutant	Source	BMPs
Total Suspended Solids (TSS) TSS is the largest pollutant by volume in Minnesota surface waters and is one of the state's more damaging pollutants. TSS are solids suspended in water that are carried offsite in stormwater runoff. They include a wide variety of materials such as silt and clay, plant material, and debris or byproducts from industrial processes.	Site preparation	Erosion and sediment control BMPs: Construction phasing, vegetative buffer strip, horizontal slope grading.
TSS	Vehicle Tracking	Stone pads, concrete or steel wash racks, street sweeping.
Fuel	Fueling activities	Impervious pavements at fueling locations to allow spill cleanup with dry absorbent materials.
Oil and heavy metals	Equipment and vehicle maintenance	Indoor maintenance and storage.
pH-affecting materials	Concrete manufacturing	Use dust collection systems (e.g., bag houses) to collect airborne particles generated during handling operations.

Document all BMPs

After you've listed your materials and activities, think about how rain, snow, snowmelt or runoff make contact with them. It may help to walk around the property to identify if, and how, they are exposed. Then explain how contact with stormwater will be limited or prevented.

Tips for documenting your BMPs

- **Pollutant:** Safety data sheets can be helpful for identifying pollutants. The Industrial Stormwater BMP Guidebook lists common pollutants of concern.
- **Management Method/BMPs:** Describe how the source of pollution is protected from rain, snow, snowmelt or runoff. Several BMPs may be required to be protective.
- **Schedule for maintaining BMPs**: Maintain all BMPs to ensure effectiveness.* A schedule for preventive maintenance of all BMPs is required in your plan.

*If BMPs are not functioning properly – maintenance, repair or replacement shall take place within seven calendar days of discovery.

See the Special Requirements section in the permit for BMP requirements if your site has stormwater discharges with a discharge location that flows to and is within one mile of an Outstanding Resource Value Water or trout waters.

Source of pollution (material or activity)	Pollutant	Management method/BMP	Schedule for maintaining BMP
Site Preparation	Dust, TSS, TDS	Construction phasing, buffer strips, and sedimentation basin.	BMP's will be inspected for maintenance and amendments during monthly facility compliance inspections.
Raw Material Excavation	Dust, TSS	Construction phasing, buffer strips, rock checks, and sedimentation basin.	During material excavation operations on-site supervisor shall visually inspect BMP's weekly and monthly facility compliance inspections will document maintenance and amendments.
Crushing/Screening	Dust, TSS, TDS, turbidity	Watering of material before or during operations.	During crushing or screening operations on-site supervisor shall monitor dust levels and initiate control measures as needed.
Rock Washing	TSS, TDS, turbidity, pH	Grading and sedimentation basin.	During operations on-site supervisor shall visually inspect BMP's weekly and monthly facility compliance inspections will document maintenance and amendments.
Material Stockpiles	Dust, TSS, TDS, turbidity, pH	Grading and sedimentation basin.	Inspect monthly during facility compliance inspections.
Dewatering	TSS, TDS, turbidity, pH	Rock checks, riprap lined channel, and buffer strip.	During dewatering operations on-site supervisor shall visually inspect BMP's weekly and monthly facility compliance inspections will document maintenance and amendments.
Fueling and Maintenance activities.	Fuel, Antifreeze, oil, solvents, and heavy metals.	Material to be stored in a covered, cool, and ventilated place when not in use.	Site supervisor to verify daily that materials are stored in proper location.
Asphalt Plant	TSS, TDS, BOD5, COD, MBAS, Benzene, O&G	Material to be stored in closed storage containers when not in use. Drip pans and splash guards will be installed at locations where frequent spilling may occur.	Plant supervisor to perform daily visual inspection of all tanks and equipment to monitor for spills, leaks, or BMP maintenance.
Material Hauling	Dust, TSS, TDS, turbidity	Watering and blading.	During material hauling operations on-site supervisor shall monitor dust and initiate control measures ASAP.

Site map (all sectors)

Include a site map, which does not need to be a surveyed map, at least to the level of detail indicated on a 7.5-minute U.S. Geological Survey quadrangle map, which identifies the features in the chart below.

You may use the MPCA's Construction Stormwater Special and Impaired Waters map tool to locate items a. through d. (surface waters, impaired waters, Outstanding Resource Value Waters and trout waters).

The U.S. Fish and Wildlife Service's Wetlands Mapper shows wetland type and extent for item e.

Portable sites can meet the requirements of i. through o. by developing general plant configuration maps.

Does your site map include these features?

Yes	N/A	Feature
☒	☐	a. Include the name of surface waters within one mile of your site. If the name is not known, indicate that on the map.
☒	☐	b. Location of all impaired waters within one mile. Include the name of the impaired water, and the impairment (e.g. impaired for biota fish, turbidity, nutrients, etc.)
☒	☐	c. Location of all Outstanding Resource Value Waters within one mile of the site.
☐	☒	d. Location of designated trout waters within one mile of the site.
☒	☐	e. Location of wetlands within one mile of the site.
☒		f. Directions of stormwater flow indicated by arrows (including stormwater that is contained/ infiltrated on site).
☒	☐	g. Location of all stormwater and non-stormwater discharge points from the facility.
☒	☐	h. Location of all overflow points from control devices.
☒		i. Topography of the area.
☒		j. Location of all activities and materials.
☒	☐	k. Location of all structural BMPs.
☐	☒	l. Location and description of any non-stormwater discharges.
☒	☐	m. Dewatering points.
☒	☐	n. Water supply wells.
☐	☒	o. Surface water supply intakes

Additional requirements for asphalt facilities

For asphalt facilities (Subsector D1) only:

Do your inventory and list of materials, site map, and inspection areas cover the following?

Yes	N/A	Material/activity
☒	☐	Petroleum storage
☒	☐	Fuel storage
☒	☐	Recycled asphalt pavement storage
☒	☐	Aggregate storage
☐	☒	Recycled concrete, concrete block and brick crushing and storage
☐	☒	Cold patch storage
☒	☐	Release agent storage and application

Additional requirements for ready mix operations

For ready mix operations (Subsector E2) only:

Do your inventory and list of materials, site map, and inspection areas cover the following?

Yes	N/A	Material/activity
☐	☒	Bag house or other dust control device
☐	☒	Recycle/sediment pond, clarifier, or other device used for the treatment of process wastewater
☐	☒	The areas that drain to the treatment device
☐	☒	Description of multiple locations of ready-mix and other concrete operations, if applicable

Karst topography

Karst areas are underlain by fractured carbonate bedrock and feature geological characteristics such as sinkholes, springs, subsurface drainage, caves, sinking streams, dissolutionally enlarged joints (grikes) or bedding planes, and bedrock surface channels (karren). Counties commonly known for karst features include parts of Dakota, Rice, Dodge, and Mower, and most of Goodhue, Olmsted, Winona, Wabasha, Houston and Fillmore.
However, karst areas are found in many other Minnesota counties. Evaluate your site for karst features using mapping tools and field observations.

The porous topography in karst areas allows contaminants to find routes quickly from the surface into groundwater. There are special requirements for containment basins in karst areas.

- Wastewater permit reference map. Search for karst features in your area. Enable the layer for 'Karst Feature Database' and zoom-in to see features.
- Map of Minnesota Regions Prone to Surface Karst Feature Development.
- County Atlases for Geology and Groundwater

Yes	No	Question
☐	☒	Is your site located in karst topography? If no, special requirements for containment basins do not apply. Proceed to the non-stormwater discharges section.
☐	☐	Are you constructing a new containment basin for non-stormwater discharges? New infiltration devices for authorized non-stormwater discharges are prohibited within 1000 feet up-gradient or 100 feet downgradient of active karst features.
☐	☐	Does your site have an existing containment basin for authorized non-stormwater discharges? Describe the additional or different measures, as necessary to assure compliance with surface and groundwater standards and to protect drinking water supply management areas:

Non-stormwater discharges to groundwater

Under this permit, the following non-stormwater discharges to groundwater are allowed as long as water is contained onsite and is not discharged to surface waters. Non-stormwater that co-mingles with stormwater is considered a non-stormwater discharge.

Does the site have any of the allowed discharges below?

Yes	No	Allowed discharges	If yes, describe what action you've taken to prevent contamination of groundwater.
☒	☐	Aggregate wash water from Subsector J1 and J2 facilities. J1 includes construction sand and gravel mining and industrial sand mining. J2 includes dimension stone and mining/quarry areas for crushed and broken limestone, granite, and other stone.	Wash water is directed into an infiltration basin to allow filtration prior to groundwater contact.
☒	☐	Dredging operations from Subsector J1 and J2 facilities.	Water is directed back into the infiltration basin to allow sediments to filter out prior to groundwater contact.
☐	☒	Installation, construction, and operation of wet scrubbers at asphalt production areas, including portable asphalt plants (Subsector D1).	
☐	☒	Washing trucks, mixers, transport buckets, forms and/or other equipment at concrete block and brick, concrete products other than block and brick, and ready-mix concrete facilities (Subsector E2).	
☐	☒	Uncontaminated scale deck wash water that does not use detergents, solvents, or degreasers.	
☐	☒	Stormwater and deck wash water collected in holding tanks under scales.	
☐	☒	Wash water associated with cleaning of mobile equipment that does not use detergents, solvents, or degreasers.	
☒	☐	Waters used for sawing stone or dust control on crushers, conveyors, associated equipment, stockpiles, and site roadways.	Dust control water for crushers is directed to the infiltration basin and roadway water is absorbed/evaporated.
☐	☒	Boiler blowdown and reverse osmosis reject.	
☐	☒	Low or high pressure steam curing.	
☐	☒	Noncontact cooling water used for dryer, pump and air compressor cooling.	

Non-stormwater discharges to surface water

This permit allows some types of non-stormwater discharges to surface waters, provided that BMPs are used to minimize erosion and discharge of sediment.

Does the site have any of the allowed discharges below?

Yes	No	Allowed discharges	If yes, describe what action you've taken to minimize erosion and limit discharge of dirt and sediment when necessary.
☐	☒	Emergency fire-fighting activities.	
☐	☒	Fire hydrant and fire suppression system flushing.	
☐	☒	Potable water line flushing.	
☐	☒	Uncontaminated condensate from air conditioners, coolers, and other compressors and from the outside storage of refrigerated gases or liquids.	
☐	☒	Pavement wash waters where no detergents are used and no spills or leaks of potential pollutants such as fertilizers, salts, or toxic and hazardous materials have occurred unless all spilled material has been removed.	
☐	☒	Routine external building wash down that does not use detergents, solvents, or degreasers.	
☒	☐	Uncontaminated groundwater or spring water (dewatering).	During dewatering operations water is directed through BMP's (rock checks, riprap lined channel, buffer strip) to minimize dirt and sediment discharge from the site.
☐	☒	Foundation or footing drains where flows are not contaminated.	
☐	☒	Incident windblown mist from cooling towers that collects on rooftops or adjacent portions of the facility, but not intentional discharges from the cooling tower (e.g. 'piped' cooling tower blowdown or drains).	

Employee training

Knowledgeable staff are key to implementing your plan to protect Minnesota's waters. Train employees who use or update the P2 Plan, work with materials or activities exposed to stormwater, do inspections, maintain BMPs, and do stormwater sampling.

Some topics you may want to cover are:

1. Purpose of the P2 Plan
2. What is in your plan
3. Use and maintenance of stormwater management methods (BMPs)
4. How to do a monthly inspection
5. How and where samples are taken

You determine how training is accomplished. Note that Mine Safety and Health Administration training is not a substitute for P2 training.

Describe your plan for training employees, at a minimum annually, on components of your plan and include periodic dates for training:

- Monthly site meetings will be utilized to discuss, site changes, good housekeeping practices and spill response procedures with all personnel on-site.
- Annual training for personnel will be done during the spring training work sessions.
- Supervisors and key personnel will be required to be certified/recertified through the UM Erosion and Stormwater Management Certification course for Site Management. Every three years personnel will be required to attend the class and pass an exam to maintain certification.

You can use the chart below to document employee training for your records.

Trainer	Employee(s)	Date	Circle topics covered (See above)
Zach Bopp	Tracer Bowar	03/16/2022	1 2 3 4 5
Zach Bopp	Jeff Brooks	03/16/2022	1 2 3 4 5
			1 2 3 4 5
			1 2 3 4 5
			1 2 3 4 5
			1 2 3 4 5
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			1 2 3 4 5
			1 2 3 4 5
			1 2 3 4 5
			1 2 3 4 5

Inspections

Conduct and document inspections monthly at active sites. At least one inspection per year must be done during a runoff event and one additional inspection occurs during a snowmelt event.

All inspections and resulting maintenance must be recorded and retained within the plan. Records of each inspection and maintenance activity shall include:

a. Date and time of inspections.

b. Name of person(s) conducting inspections.

c. An evaluation of the facility to determine that the plan accurately reflects conditions as described in the P2 Plan. At a minimum, the Permittee shall inspect storage tank areas, waste disposal areas, maintenance areas, loading/unloading areas, and raw material, intermediate product, by-product and final product storage areas.

d. An evaluation of all structural and non-structural BMPs to determine effectiveness and proper function.

e. An evaluation of the facility to determine whether new exposed significant materials or activities have been added to the site since completion of the plan.

f. Findings of inspections, including recommendations for corrective actions.

g. Corrective actions taken (including dates, times, and party completing maintenance activities).

h. BMPs that aren't functioning properly need to be repaired, maintained or replaced within 7 calendar days of discovery. If repairs or replacement can't be completed within 7 calendar days, implement a backup BMP (temporary or permanent) until the original BMP is restored and document in the plan why you needed more time to fix the failed BMP.

i. Asphalt and ready-mix operations see 'Additional Requirements' in this template for other areas to include in inspections.

You may develop your own inspection forms based on items a.-i.

- A form was developed for inspections. The "Stormwater Inspection Checklist" is attached in **Appendix B**.

The MPCA's Small Business Environmental Assistance Program has compliance calendars for Aggregate facilities and Hot mix asphalt plants which include space to document monthly inspections.

What if my site is temporarily inactive?

A site, or portion of a site, is temporarily inactive when nonmetallic mineral mining and/or milling, asphalt production or ready-mix concrete production occurred in the past but is currently not actively undertaken and permit coverage is maintained because it's possible the activity will resume in the foreseeable future.

Permittees with a temporarily inactive and unstaffed site are exempt from conducting monthly site inspections. Ensure that permanent stormwater BMPs are maintained.

Intervention limit monitoring is not required while temporarily inactive, but you still need to report the inactivity in the Comments section of the Discharge Monitoring Report. Should the site become active, sample in accordance with the monitoring requirements of your permit for the calendar year the site becomes active.

What if my site is inactive?

A site, or portion of a site, is inactive when nonmetallic mineral mining and/or milling, asphalt production and ready-mix concrete production occurred in the past but is not an active facility. You do not anticipate mining and/or associated activities to occur in the foreseeable future, you've requested permit coverage at the inactive portion be terminated, and the inactive portion is no longer covered by an active mining permit.

Permittees with an inactive and unstaffed site, or a site that is undergoing final stabilization, are exempt from conducting monthly site inspections. Ensure that permanent stormwater BMPs are maintained.

Spill prevention and response (all sectors)

Develop and implement a spill prevention and response procedure. If the site already has a separate plan that addresses the necessary components, that plan can be incorporated by reference into the P2 Plan. Address all materials onsite. Spills include the discharge or movement of sediment.

How does the site meet the spill prevention and response requirement? Check one:

☐ Our site already has a separate spill prevention and response plan that meets the requirements of the MNG49 permit. We will refer to (Insert Name of Plan:).

☒ Our spill prevention and response plan is included in this P2 Plan.

In either case, a minimum of the following components shall be included with the P2 Plan, or in a separate document:

☒ Which materials could spill.

- Fuel
- Antifreeze
- Hydraulic Fluids
- Petroleum-based products
- Oil
- Solvents

☒ Areas where spills could occur (e.g. where mobile refuelers transfer product).

- Equipment fueling and transfer areas
- Material and fluid storage areas
- Equipment maintenance areas

☒ How materials will be handled and stored to prevent spills.

- **MATERIAL STORAGE**

  Products with a potential to leach pollutants to minimize exposure to stormwater must be kept under cover (i.e. plastic sheeting or temporary roofs) to prevent the discharge of pollutants or protected by a similarly effective means designed to minimize contact with stormwater.

  Hazardous or toxic waste (e.g., oil, fuel, hydraulic fluids, paint solvents, petroleum-based products, wood preservative, additives, curing compounds, and acids) shall be properly stored in sealed containers to prevent spills, leaks or other discharge. Restricted access storage areas must be provided to prevent vandalism.

- **DISPOSAL OF SOLID WASTE**

  Solid waste shall be collected, stored, and disposed of properly into disposal bins or sealed containers. Disposal will be scheduled regularly to avoid over filling containers.

- **EQUIPMENT MAINTENANCE**

  Maintenance vehicles brought to the site will contain catch pans and used oil recovery pumps to pump waste oil into sealed containers until they can be properly disposed.

  Vehicles will be equipped with garbage cans with covers for disposal of contaminated rags, filters, hoses, etc. from maintenance operations. A separate container for solid waste is kept on the vehicle as well. All waste collected will be properly disposed offsite.

  Maintenance vehicles will also be equipped with oil absorbent pads absorb and dispose of any minor spills during maintenance activities.

- **SANITARY WASTE DISPOSAL**

  Portable toilets shall be positioned so that they are secure and will not be tipped or knocked over. Sanitary waste shall be disposed of properly by certified vendors.

☒ Cleanup equipment, materials, and procedures to recover as rapidly and thoroughly as possible spills or leaks. Make sure materials and procedures are available to appropriate site personnel.

- Garbage cans with covers for disposal of daily trash accumulation and contaminated rags, filters, hoses, etc. will be provided and regular disposal will be schedule to ensure materials are disposed of properly.
- Oil absorbent pads and spill kits will be kept onsite to absorb and dispose of any minor spills during operations will be available in the job trailers.

☒ Contact information for staff members, emergency, and regulatory agencies that must be notified in the event of a spill. When a spill or discharge of a potentially polluting material occurs, the Permittee shall immediately notify the Minnesota Department of Public Safety Duty Officer at 1-800-422-0798 (toll free) or 651-649-5451 (metro area).

- Call List
  - Facility Supervisor – Jeff Brooks (218) 556-5647
  - SWPPP Compliance Officer – Tracer Bowar (701) 640-9654
  - Minnesota Department of Public Safety Duty Officer - 1-800-422-0798

☒ Report and document spills or leaks (as defined in Minn. Stat. Section 115.061) that occur in areas exposed to stormwater, or that drain to a monitoring location. Spills or discharges of any material, including sediment, which has the potential to pollute shall be reported.

- Reportable spills include the following:
  - Spills of petroleum in a quantity greater than 5 gallons.
  - Spills of any quantity of all other chemicals or materials which may cause pollution of Waters of the State.

For asphalt production (Subsector D1):

☒ You must use drip pans and splash guards where spills frequently occur; list where they will be placed.

- Fuel Tanker filling and transfer locations.
- AC and Tack Oil filling and transfer locations

For ready-mix and other concrete operations (Subsector E2):

☐ How you will prevent or minimize spilled cement, aggregate (including sand or gravel), kiln dust, fly ash, or settled dust from paved portions of the facility that are exposed to stormwater.

- NA

☐ How frequently you will sweep cement, aggregate, kiln dust, fly ash or settled dust from paved surfaces. Determine frequency by the amount of activity and frequency of exposure to stormwater, but sweep at least once per week where materials are being handled or processed and are present on paved surfaces.

- NA

☐ How you will prevent exposure of fine granular solids (cement, fly ash, kiln dust, etc.) to stormwater, where practical, by storing these materials in enclosed silos, hoppers, buildings, or under cover.

- NA

☐ How process wastewater from washing trucks, mixers, transport buckets, forms or other equipment is discharged as allowed by this permit.

- NA

Annual review

Review your plan at least annually and update it to show if any of the changes below have occurred. You can make copies of this form to help you review your plan and document your review.

If your permit covers multiple sites and a site achieves final stabilization requirements or ownership has been transferred, submit a Site Inventory Form to notify the MPCA and terminate coverage for the site. Only after coverage is terminated will you be released from all inspection, recording, and reporting requirements.

Annual review checklist

Date plan was reviewed: 01/2023

Who reviewed the plan: Zach Bopp

For your annual review, has the plan been updated to show the below activities?

Yes	N/A	Activities requiring plan to be updated	Describe activity
☐	☒	There is construction or a change in design, operation, or maintenance at the facility that affects stormwater and wastewater management or compliance with this permit.	No major operational changes are expected for 2023 season.
☐	☒	The Permittee has identified a monitoring location from which the discharge flows to, and is within one mile of an impaired water. Use Map tool to identify impaired waters: Construction Stormwater Special and Impaired Waters	
☐	☒	A routine inspection, compliance evaluation, or visual inspection found deficiencies in the plan and/or BMP.	
☐	☒	Additional stormwater and/or wastewater control measures and BMPs are necessary to meet applicable water quality standards or to address exceedances of intervention limits. Initiate modifications to the plan and BMPs immediately, but no later than 14 days (unless the result of an improperly functioning BMP – then 7 days) beyond discovery of an intervention limit exceedance. If it is infeasible to complete the installation of a new or modified BMP within 14 calendar days, document why and outline a schedule for completing the work. Implementation must be completed as soon as practicable after the 14-day timeframe but no longer than 45 days after discovery. If 45 days is infeasible, complete the installation or repair as soon as practicable and document the reason for the delay.	
☐	☒	There is an unauthorized discharge from the facility. Include description and date of release, circumstances leading to the release, response, and measures taken to prevent recurrence.	

Gather inspection records

Your annual review is a good time to make sure your plan includes inspection records. Take a look at your inspection records and note:

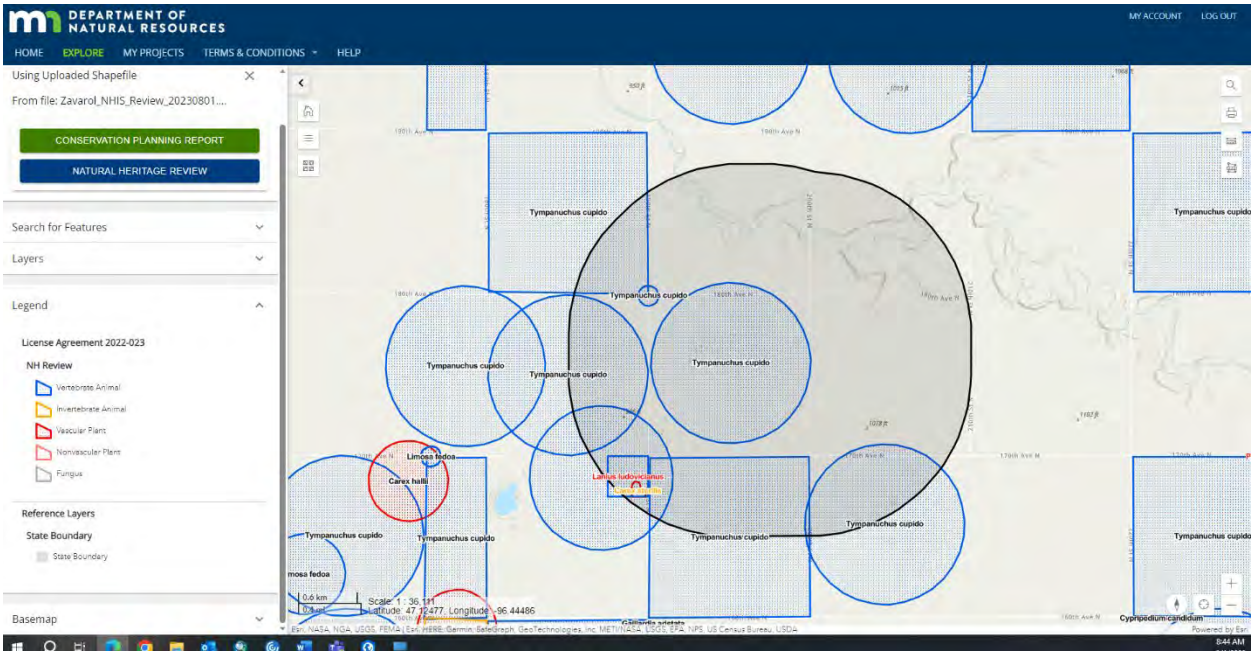
☒ Yes, the plan includes all inspection records from the previous year.

☒ Inspections from these dates were not conducted and are not included: (Insert dates below)

- 2022 January, February, April, and December due to site inactivity and frozen site conditions.

Appendix D

NHIS Query and IPaC Species List



sci_name	com_name	s_rank	rnd_s_rank	g_rank	g_rank_r	habitat
Tympanuchus cupido	Greater Prairie-chicken	S3	S3	G4	G4	Upland Prairie
Tympanuchus cupido	Greater Prairie-chicken	S3	S3	G4	G4	Upland Prairie
Tympanuchus cupido	Greater Prairie-chicken	S3	S3	G4	G4	Upland Prairie
Tympanuchus cupido	Greater Prairie-chicken	S3	S3	G4	G4	Upland Prairie
Tympanuchus cupido	Greater Prairie-chicken	S3	S3	G4	G4	Upland Prairie
Tympanuchus cupido	Greater Prairie-chicken	S3	S3	G4	G4	Upland Prairie
Carex sterilis	Sterile Sedge	S2	S2	G4G5	G4	Non-forested Rich Peatland
Lanius ludovicianus	Loggerhead Shrike	S1B	S1B	G4	G4	Upland Prairie
Lanius ludovicianus	Loggerhead Shrike	S1B	S1B	G4	G4	Upland Prairie

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Clay County, Minnesota

Local office

Minnesota-Wisconsin Ecological Services Field Office

(952) 858-0793
(952) 646-2873

3815 American Blvd East

3015 American Blvd East
Bloomington, MN 55425-1659

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Northern Long-eared Bat Myotis septentrionalis Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9045	Threatened

Insects

NAME	STATUS
Dakota Skipper Hesperia dacotae Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/1028	Threatened
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Flowering Plants

NAME	STATUS
Western Prairie Fringed Orchid Platanthera praeclara Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1669	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

---

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern https://www.fws.gov/program/migratory-birds/species
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON

Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Dec 1 to Aug 31
Black Tern Chlidonias niger This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3093	Breeds May 15 to Aug 20
Black-billed Cuckoo Coccyzus erythropthalmus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399	Breeds May 15 to Oct 10
Bobolink Dolichonyx oryzivorus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Jul 31
Chestnut-collared Longspur Calcarius ornatus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Aug 10
Chimney Swift Chaetura pelagica This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 25
Franklin's Gull Leucophaeus pipixcan This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Jul 31
Golden Eagle Aquila chrysaetos This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31

Golden-winged Warbler Vermivora chrysoptera This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8745	Breeds May 1 to Jul 20
Henslow's Sparrow Ammodramus henslowii This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3941	Breeds May 1 to Aug 31
Lesser Yellowlegs Tringa flavipes This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Marbled Godwit Limosa fedoa This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9481	Breeds May 1 to Jul 31
Red-headed Woodpecker Melanerpes erythrocephalus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Sep 10
Sprague's Pipit Anthus spragueii This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8964	Breeds May 10 to Aug 31
Western Grebe aechmophorus occidentalis This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/6743	Breeds Jun 1 to Aug 31
Willet Tringa semipalmata This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 20 to Aug 5

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and

understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (▪)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

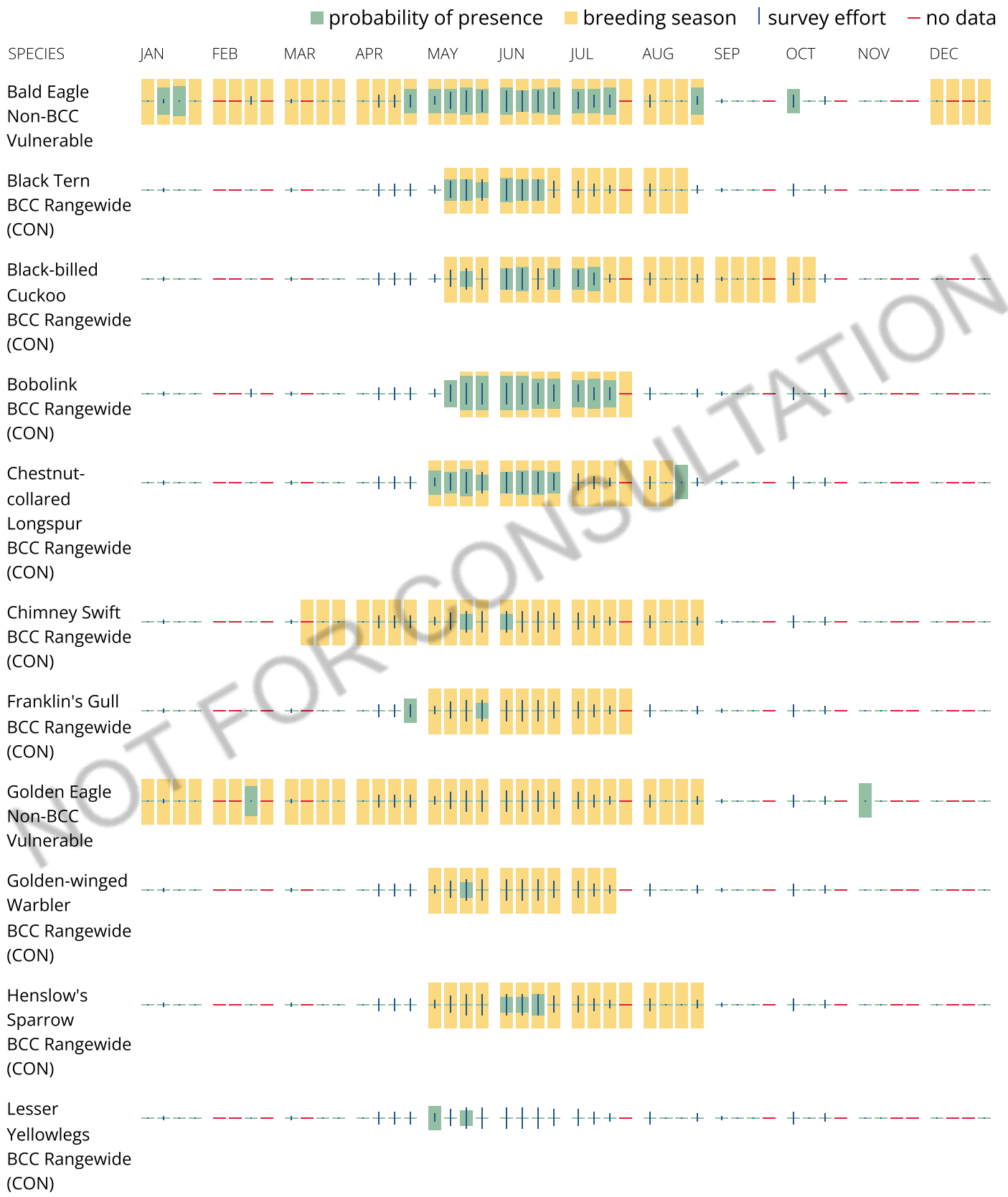
Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

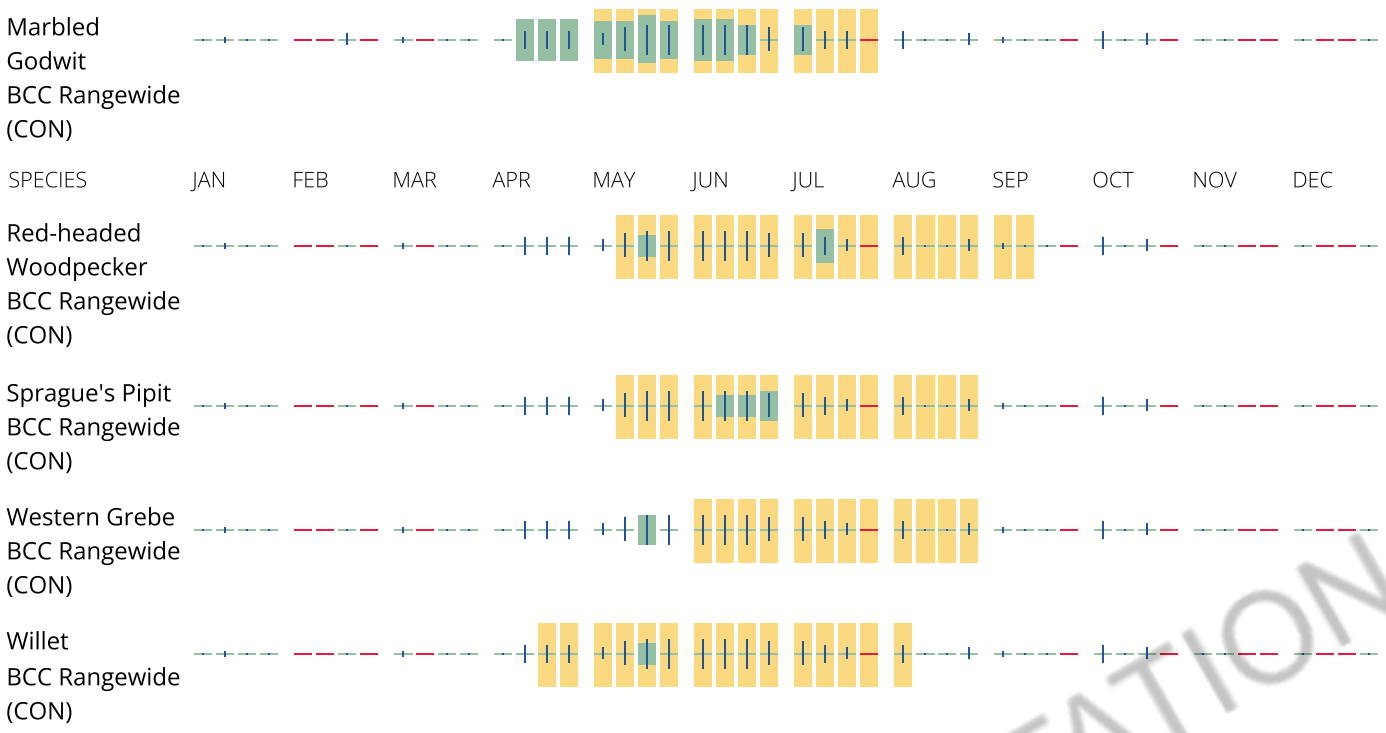
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.





Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

This location did not intersect any wetlands mapped by NWI.

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies.

Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Formal Natural Heritage Review - Cover Page

See next page for results of review. A draft watermark means the project details have not been finalized and the results are not official.

Project Name: Green Gravel Pit Expansion Project

Project Proposer: RJ Zavoral & Sons, Inc.

Project Type: Mining, Gravel

Project Type Activities: Tree Removal;Wetland impacts (e.g., dewatering, discharge, excavation, fill, runoff, sedimentation)

TRS: T142 R45 S21, T142 R45 S22

County(s): Clay

DNR Admin Region(s): Northwest

Reason Requested: State EAW

Project Description: RJ Zavoral & Sons, Inc. proposes to expand the existing, approximately 36.4-acre, Green Gravel Pit in Hagen Township, Clay County, Minnesota. The approximately ...

Existing Land Uses: The existing site has been utilized for aggregate mining since approximately 2014. Existing land uses surrounding the site primarily consist of agricultural and rural residential uses.

Landcover / Habitat Impacted: The Project Area is composed of wetlands, grasslands, scrub/shrub, and disturbed areas associated with aggregate mining operations

Waterbodies Affected: An unnamed stream intersects the property. A 100-foot setback buffer would be maintained from the stream edge. The Project has been designed to minimize ...

Groundwater Resources Affected: It is anticipated that the current water appropriation for the operation would be sufficient for the expansion area. Therefore, a the Project would not require any new water appropriations.

Previous Natural Heritage Review: No

Previous Habitat Assessments / Surveys: No

SUMMARY OF AUTOMATED RESULTS

Category	Results	Response By Category
Project Details	Comments	Tree Removal - Recommendations
Ecologically Significant Area	Comments	Local Conservation Value - Comment Protected Wetlands: Calcareous Fens
State-Listed Endangered or Threatened Species	Needs Further Review	State-protected Species in Vicinity
State-Listed Species of Special Concern	Comments	Recommendations
Federally Listed Species	No Records	Visit IPaC For Federal Review

DEPARTMENT OF NATURAL RESOURCES

August 17, 2023

Project Name: Green Gravel Pit Expansion Project
Project Proposer: RJ Zavoral & Sons, Inc.
Project Type: Mining, Gravel
Project ID: MCE #2023-00637

AUTOMATED RESULTS: FURTHER REVIEW IS NEEDED
As requested, the above project has undergone an automated review for potential impacts to rare features. Based on this review, one or more rare features may be impacted by the proposed project and further review by the Natural Heritage Review Team is needed. You will receive a separate notification email when the review process is complete and the Natural Heritage Review letter has been posted.

Please refer to the table on the cover page of this report for a summary of potential impacts to rare features. For additional information or planning purposes, use the Explore Page in Minnesota Conservation Explorer to view the potentially impacted rare features or to create a Conservation Planning Report for the proposed project.

If you have additional information to help resolve the potential impacts listed in the summary results, please attach related project documentation in the Edit Details tab of the Project page. Relevant information includes, but is not limited to, additional project details, completed habitat assessments, or survey results. This additional information will be considered during the project review.

Green Gravel Pit Expansion Project

Aerial Imagery With Locator Map

N
W E
S

0 0.15 0.3 0.6 0.9 1.2 Miles

Project Boundary

Project Type: Mining, Gravel

Project Size (acres): 85.98

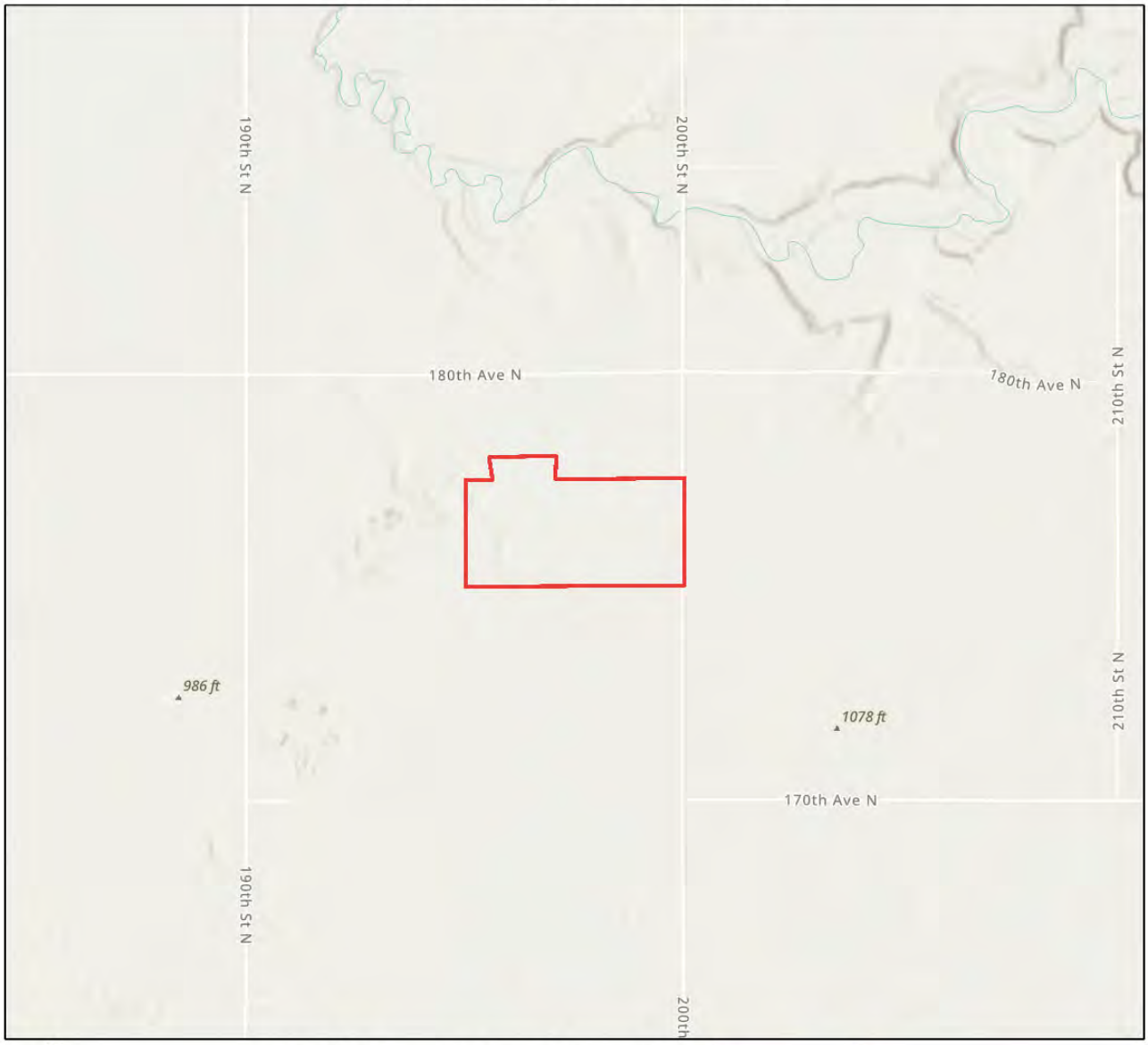
County(s): Clay

TRS: T142 R45 S21, T142 R45 S22

Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA
Fargo, North Dakota, Maxar

Green Gravel Pit Expansion Project

USA Topo Basemap With Locator Map



N
W E
S

0 0.15 0.3 0.6 0.9 1.2 Miles

Project Boundary

Project Type: Mining, Gravel

Project Size (acres): 85.98

County(s): Clay

TRS: T142 R45 S21, T142 R45 S22

DEPARTMENT OF NATURAL RESOURCES

Minnesota Department of Natural Resources
Division of Ecological & Water Resources
500 Lafayette Road, Box 25
St. Paul, MN 55155-4025

October 18, 2023
Correspondence # MCE 2023-00637

Erin Sejkora
Stantec

RE: Natural Heritage Review of the proposed Green Gravel Pit Expansion Project,
T142N R45W Sections 21-22; Clay County

Dear Erin Sejkora,

As requested, the Minnesota Natural Heritage Information System has been reviewed to determine if the proposed project has the potential to impact any rare species or other significant natural features. Based on the project details provided with the request, the following rare features may be impacted by the proposed project:

Ecologically Significant Areas

- There is an area ranked as an *Area with Potential Local Conservation Value* immediately to the south of the proposed project boundary that the Minnesota Biological Survey considered for Sites of Biodiversity Significance but was determined to be below the minimum biodiversity threshold for statewide significance. These areas, however, have conservation value at the local level as habitat for native plants and animals, corridors for animal movements, buffers surrounding higher quality natural areas, or as areas with high potential for restoration of native habitat.

  MBS Sites of Biodiversity Significance and DNR Native Plant Communities can be viewed using the Minnesota Conservation Explorer or their GIS shapefiles can be downloaded from the MN Geospatial Commons. Please contact the NH Review Team if you need assistance accessing the data. Reference the MBS Site Biodiversity Significance and Native Plant Community websites for information on interpreting the data.

- The proposed project is within a Prairie Core Area as identified in the Minnesota Prairie Conservation Plan, a twenty-five-year strategy for accelerating prairie conservation in the state. To meet the Plan's goals, activities within Prairie Core Areas will need to include restoration. Any

voluntary or required mining reclamation efforts should be directed toward prairie or grassland restoration.

- Two calcareous fens (Felton Prairie, County Land, ID# 7726 and Felton Prairie Felton WMA, ID# 247) were documented in the vicinity of the proposed project. A calcareous fen is a rare and distinctive peat-accumulating wetland that is legally protected in Minnesota. The Wetlands Conservation Act (WCA), authorized by *Minnesota Statutes*, section 103G.223, states that calcareous fens may not be filled, drained, or otherwise degraded, wholly or partially, by any activity, except as provided for in a management plan approved by the commissioner of the Department of Natural Resources. Many of the unique characteristics of calcareous fens result from the upwelling of groundwater through calcareous substrates. Because of this dependence on groundwater hydrology, calcareous fens can be affected by nearby activities or even those several miles away. For more information regarding calcareous fens, please see the Calcareous Fen Fact Sheet. To minimize stormwater impacts, please refer to the Minnesota Pollution Control Agency's General Principles for Erosion Prevention and Sediment Control in the Minnesota Stormwater Manual. Please note that calcareous fens are "Special Waters" and a buffer zone may be required.

  Calcareous fens may be impacted by activities within the fen, activities that affect surface water flows (e.g., stormwater flow, erosion), or activities that affect groundwater hydrology (e.g., groundwater pumping, contamination, discharge, or excavation). To ensure compliance under WCA, please contact the Calcareous Fen Program Coordinator, Keylor Andrews (Keylor.Andrews@state.mn.us).

State-listed Species

- The loggerhead shrike (*Lanius ludovicianus*), a state-listed endangered bird, has been documented in the vicinity of the project site. Loggerhead shrikes use grasslands that contain short grass and scattered perching sites such as hedgerows, shrubs, or small trees. They can be found in native prairie, pastures, shelterbelts, old fields or orchards, cemeteries, grassy roadsides, and farmyards. Minnesota's Endangered Species Statute (*Minnesota Statutes*, section 84.0895) and associated Rules (*Minnesota Rules*, part 6212.1800 to 6212.2300 and 6134) prohibit the take of endangered or threatened plants or animals, including their parts or seeds, without a permit. **Given the potential for this species to be found in the vicinity of the project, tree and shrub removal is required to be avoided during the breeding season, April through July.** If you cannot avoid tree removal during loggerhead shrike breeding period, a qualified surveyor needs to conduct a survey for active nests before any trees or shrubs will be removed. Requirements for surveys and lists of DNR certified lists of surveyors can be found at the Natural Heritage Review website. Survey results should be sent to the NH Review Team at Reports.NHIS@state.mn.us.

- Booming grounds of the greater prairie chicken (*Tympanuchus cupido*), a state-listed bird of special concern, have been documented in the vicinity of the proposed project. During the booming season, usually April 1 through May 15, dozens of males gather in areas of short cover (including agricultural land), where they defend small territories and advertise to females using elaborate displays and booming sounds. After the mating season ends, the birds disperse and nest in areas of dense, undisturbed cover. We recommend avoiding disturbance to possible nesting habitat April through mid-June to help to minimize disturbance to this rare bird. Fencing the proposed project boundaries would also minimize potential impacts to these birds.

- The Natural Heritage Information System (NHIS) tracks bat roost trees and hibernacula plus some acoustic data, but this information is not exhaustive. Even if there are no bat records listed nearby, all seven of Minnesota's bats, including the federally endangered northern long-eared bat (*Myotis septentrionalis*), can be found throughout Minnesota. During the active season (approximately April-November) bats roost underneath bark, in cavities, or in crevices of both live and dead trees. Tree removal can negatively impact bats by destroying roosting habitat, especially during the pup rearing season when females are forming maternity roosting colonies and the pups cannot yet fly. To minimize these impacts, the DNR recommends that tree removal be avoided from June 1 through August 15.

- Please visit the DNR Rare Species Guide for more information on the habitat use of these species and recommended measures to avoid or minimize impacts. For further assistance with these species, please contact the appropriate DNR Regional Nongame Specialist or Regional Ecologist.

Federally Protected Species

- To ensure compliance with federal law, conduct a federal regulatory review using the U.S. Fish and Wildlife Service's (USFWS) online Information for Planning and Consultation (IPaC) tool.

Environmental Review and Permitting

- The Environmental Assessment Worksheet should address whether the proposed project has the potential to adversely affect the above rare features and, if so, it should identify specific measures that will be taken to avoid or minimize disturbance. Sufficient information should be provided so the DNR can determine whether a takings permit will be needed for any of the above protected species.

- Please include a copy of this letter and the MCE-generated Final Project Report in any state or local license or permit application. Please note that measures to avoid or minimize disturbance to the above rare features may be included as restrictions or conditions in any required permits or licenses.

The Natural Heritage Information System (NHIS), a collection of databases that contains information about Minnesota's rare natural features, is maintained by the Division of Ecological and Water Resources, Department of Natural Resources. The NHIS is continually updated as new information becomes available, and is the most complete source of data on Minnesota's rare or otherwise significant species, native plant communities, and other natural features. However, the NHIS is not an exhaustive inventory and thus does not represent all of the occurrences of rare features within the state. Therefore, ecologically significant features for which we have no records may exist within the project area. If additional information becomes available regarding rare features in the vicinity of the project, further review may be necessary.

For environmental review purposes, the results of this Natural Heritage Review are valid for one year; the results are only valid for the project location and project description provided with the request. If project details change or the project has not occurred within one year, please resubmit the project for review within one year of initiating project activities.

The Natural Heritage Review does not constitute project approval by the Department of Natural Resources. Instead, it identifies issues regarding known occurrences of rare features and potential impacts to these rare features. Visit the Natural Heritage Review website for additional information regarding this process, survey guidance, and other related information. For information on the environmental review process or other natural resource concerns, you may contact your DNR Regional Environmental Assessment Ecologist.

Thank you for consulting us on this matter and for your interest in preserving Minnesota's rare natural resources.

Sincerely,

James Drake

James Drake
Natural Heritage Review Specialist
James.F.Drake@state.mn.us

Cc: Owen Baird, Keylor Andrews

Appendix E

SHPO Query

From:	MN_MNIT_Data Request SHPO
To:	Mueller, Kevin
Cc:	Banks, Benjamin; Bot, Courtnay
Subject:	RE: Gravel Pit EAW Lit Search
Date:	Friday, July 21, 2023 10:32:23 AM
Attachments:	image001.png image002.png image003.png image004.png Stantec_Kevin Mueller_Project Area_ALL_Gravel Pit EAW.zip

---

Hello Kevin,

Please see attached.

Jim

DEPARTMENT OF ADMINISTRATION
STATE HISTORIC PRESERVATION OFFICE

SHPO Data Requests
Minnesota State Historic Preservation Office
50 Sherburne Avenue, Suite 203
Saint Paul, MN 55155
(651) 201-3299
datarequestshpo@state.mn.us

Notice: This email message simply reports the results of the cultural resources database search you requested. The database search is only for previously known archaeological sites and historic properties. **IN NO CASE DOES THIS DATABASE SEARCH OR EMAIL MESSAGE CONSTITUTE A PROJECT REVIEW UNDER STATE OR FEDERAL PRESERVATION LAWS –** please see our website at https://mn.gov/admin/shpo/protection/ for further information regarding our Environmental Review Process.

Because the majority of archaeological sites in the state and many historic/architectural properties have not been recorded, important sites or properties may exist within the search area and may be affected by development projects within that area. Additional research, including field surveys, may be necessary to adequately assess the area's potential to contain historic properties or archaeological sites.

Properties that are listed in the National Register of Historic Places (NRHP) or have been determined eligible for listing in the NRHP are indicated on the reports you have received, if any. The following codes may be on those reports:

NR – National Register listed. The properties may be individually listed or may be within the boundaries of a National Register District.

CEF – Considered Eligible Findings are made when a federal agency has recommended that a property is eligible for listing in the National Register and MN SHPO has accepted the recommendation for the purposes of the Environmental Review Process. These properties need to be further assessed before they are officially listed in the National Register.

SEF – Staff eligible Findings are those properties the MN SHPO staff considers eligible for listing in the National Register, in circumstances other than the Environmental Review Process.

DOE – Determination of Eligibility is made by the National Park Service and are those properties that are eligible for listing in the National Register, but have not been officially listed.

CNEF – Considered Not Eligible Findings are made during the course of the Environmental Review Process. For the purposes of the review a property is considered not eligible for listing in the National Register. These properties may

need to be reassessed for eligibility under additional or alternate contexts.
Properties without NR, CEF, SEF, DOE, or CNEF designations in the reports may not have been evaluated and therefore no assumption to their eligibility can be made. Integrity and contexts change over time, therefore any eligibility determination made ten (10) or more years from the date of the current survey are considered out of date and the property will need to be reassessed.
If you require a comprehensive assessment of a project's potential to impact archaeological sites or historic/architectural properties, you may need to hire a qualified archaeologist and/or historian. If you need assistance with a project review, please contact Kelly Gragg-Johnson, Environmental Review Specialist @ 651-201-3285 or by email at kelly.graggjohnson@state.mn.us.
The Minnesota SHPO Archaeology and Historic/Architectural Survey Manuals can be found at https://mn.gov/admin/shpo/identification-evaluation/.

Please subscribe to receive SHPO notices for the most current updates regarding office hours, accessing research files, or changes in submitting materials to the SHPO.

To access historic resource information please visit our webpage on Using SHPO's Files.

From: Mueller, Kevin <kevin.mueller@stantec.com>
Sent: Wednesday, July 12, 2023 2:12 PM
To: MN_MNIT_Data Request SHPO <DataRequestSHPO@state.mn.us>
Cc: Banks, Benjamin <Benjamin.Banks@stantec.com>; Bot, Courtnay <Courtnay.Bot@stantec.com>
Subject: Gravel Pit EAW Lit Search

Hello,

I would like to request a records search for the attached project. Would it also be possible to provide the search results in an access database format?

Thank you and please let me know if there are any questions.

Kevin Mueller
GIS Specialist

Direct: (763) 252-6827
Mobile: (952) 334-1991

Stantec
One Carlson Parkway, Suite 100

Appendix F

Greenhouse Gas Analysis

RJ Zavoral & Sons, Inc. - Environmental Assessment Worksheet Data

Onroad/Offroad	Vehicle Type	Number of Vehicles	Fuel type	Vehicle year	Miles Driven per Day per Vehicle[1]	Miles per Gallon[2]	Gallons per Day	Days per Year[3]	Gallons per Year
Onroad	Light Duty Trucks (pickups, vans, SUVs)	1	Gasoline	2017	30	17.6	1.70	260	443
	Heavy Duty Trucks (weight >8,500 lbs)	2	Diesel	2017	30	7.5	8.01	260	2,083

1. Estimate.
2. Average mpg values from the U.S. Department of Transportation, Federal Highway Administration, Highway Statistics 2019 (December 2021), Table VM-1.
3. Assume 5 days/week, 52 weeks/year.

Onroad/Offroad	Vehicle Type	Number of vehicles	Fuel type	Vehicle year	Consumption Rate (gal/hour per vehicle)	Hours	Total Gallons
Off-road**	CAT D8 Dozer	1	Diesel	2000	10	250	2500
	CAT 980 Loader	1	Diesel	2007	8	250	2000
	John Deere 644 Loader	1	Diesel	2003	6.5	250	1625
	CAT 246 Skid Loader	1	Diesel	2005	2.5	75	187.5
	John Deere 450 Excavator	1	Diesel	2006	10	125	1250
	Volvo A30 Hauler	2	Diesel	2008	10	125	2500
	Dredge (occasional)***	N/A	N/A				

Note: All values represent existing mining and post-expansion mining - equipment forces will not change.
**Off-road values are based on a typical mining/crushing setup once per year, of average duration.
***Dredging performed by subcontractor and not included in this assessment.

Back to Intro | Back to Summary | Help

EPA CENTER FOR CORPORATE CLIMATE LEADERSHIP
U.S. Environmental Protection Agency

Scope 1 Emissions from Mobile Sources

Guidance

(A) Enter annual data for each vehicle or group of vehicles (grouped by vehicle type, vehicle year, and fuel type) in ORANGE cells in **Table 1**. Example entry is shown in first row (GREEN *Italics*). Only enter vehicles owned or leased by your organization on this sheet. All other vehicle use such as employee commuting or business travel is considered a scope 3 emissions source and should be reported in the corresponding scope 3 sheets.

- Select "On-Road" or "Non-Road" from drop down box to determine the Vehicle Types available. **Must select before picking vehicle type.**
- Select "Vehicle Type" from drop down box (closest type available).
- Enter "Fuel Usage" in appropriate units (units appear when vehicle type is selected).
- If mileage or fuel usage is unknown, estimate using approximate fuel economy values (see **Reference Table** below).
- Vehicle year and Miles traveled are not necessary for non-road equiment.

(B) When using biofuels, typically the biofuel (biodiesel or ethanol) is mixed with a petroleum fuel (diesel or gasoline) for use in vehicles. Enter the biodiesel and ethanol percentages of the fuel if known, or leave default values.

Biodiesel Percent:	20	%
Ethanol Percent:	80	%

(C) Biomass CO_2 emissions from biodiesel and ethanol are not reported in the total emissions, but are reported separately at the bottom of the sheet.

Table 1. Mobile Source Fuel Combustion and Miles Traveled

Source ID	Source Description	On-Road or Non-Road?	Vehicle Type	Vehicle Year	Fuel Usage	Units	Miles Traveled
Fleet-012	*HQ Fleet*	*OnRoad*	*Passenger Cars - Gasoline*	*2019*	*500*	*gal*	*12,065*
Light Duty On-Road Trucks	Light Duty On-Road	OnRoad	Light-Duty Trucks - Gasoline	2017	443	gal	7,800
Heavy Duty On-Road Trucks	Heavy Duty On-Road	OnRoad	Medium- and Heavy-Duty Vehicles - Diesel	2017	2,083	gal	15,600
CAT D8 Dozer	CAT D8 Dozer	NonRoad	Construction/Mining Equipment - Diesel		2,500	gal	
CAT 980 Loader	CAT 980 Loader	NonRoad	Construction/Mining Equipment - Diesel		2,000	gal	
John Deere 644 Loader	John Deere 644 Loader	NonRoad	Construction/Mining Equipment - Diesel		1,625	gal	
CAT 246 Skid Loader	CAT 246 Skid Loader	NonRoad	Construction/Mining Equipment - Diesel		188	gal	
John Deere 450 Excavator	John Deere 450 Excavator	NonRoad	Construction/Mining Equipment - Diesel		1,250	gal	
Volvo A30 Hauler	Volvo A30 Hauler	NonRoad	Construction/Mining Equipment - Diesel		2,500	gal	

Reference Table: Average Fuel Economy by Vehicle Type

Vehicle Type	Average Fuel Economy (mpg)
Passenger Cars	24.1
Motorcycles	44.0
Diesel Buses (Diesel Heavy-Duty Vehicles)	7.3
Other 2-axle, 4-Tire Vehicles	17.6
Single unit 2-Axle 6-Tire or More Trucks	7.5
Combination Trucks	6.0

GHG Emissions

Total Organization-Wide Mobile Source Fuel Usage and CO_2 Emissions (On-Road and Off-Road Vehicles)

Fuel Type	Fuel Usage	Units	CO_2 (kg)	
Motor Gasoline	443	gallons	3,888.9	
Diesel Fuel	12,145	gallons	124,003.3	
Residual Fuel Oil	0	gallons	0.0	
Aviation Gasoline	0	gallons	0.0	
Kerosene-Type Jet Fuel	0	gallons	0.0	
Liquefied Petroleum Gas (LPG)	0	gallons	0.0	
Ethanol	0	gallons	0.0	*Note: emissions here are only for the g*
Biodiesel	0	gallons	0.0	*Note: emissions here are only for the di*
Liquefied Natural Gas (LNG)	0	gallons	0.0	
Compressed Natural Gas (CNG)	0	scf	0.0	

Total Organization-Wide On-Road Gasoline Mobile Source Mileage and CH_4/N_2O Emissions

Vehicle Type	Vehicle Year	Mileage (miles)	CH_4 (g)	N_2O (g)
Passenger Cars - Gasoline	1984-93	0	0.0	0.0
	1994	0	0.0	0.0
	1995	0	0.0	0.0
	1996	0	0.0	0.0
	1997	0	0.0	0.0
	1998	0	0.0	0.0
	1999	0	0.0	0.0
	2000	0	0.0	0.0
	2001	0	0.0	0.0
	2002	0	0.0	0.0
	2003	0	0.0	0.0
	2004	0	0.0	0.0
	2005	0	0.0	0.0
	2006	0	0.0	0.0
	2007	0	0.0	0.0
	2008	0	0.0	0.0
	2009	0	0.0	0.0
	2010	0	0.0	0.0
	2011	0	0.0	0.0
	2012	0	0.0	0.0
	2013	0	0.0	0.0
	2014	0	0.0	0.0
	2015	0	0.0	0.0
	2016	0	0.0	0.0
	2017	0	0.0	0.0
	2018	0	0.0	0.0
	2019	0	0.0	0.0
Light-Duty Trucks - Gasoline	1987-93	0	0.0	0.0
(Vans, Pickup Trucks, SUVs)	1994	0	0.0	0.0
	1995	0	0.0	0.0
	1996	0	0.0	0.0
	1997	0	0.0	0.0
	1998	0	0.0	0.0
	1999	0	0.0	0.0
	2000	0	0.0	0.0
	2001	0	0.0	0.0
	2002	0	0.0	0.0
	2003	0	0.0	0.0
	2004	0	0.0	0.0
	2005	0	0.0	0.0
	2006	0	0.0	0.0
	2007	0	0.0	0.0
	2008	0	0.0	0.0
	2009	0	0.0	0.0
	2010	0	0.0	0.0
	2011	0	0.0	0.0
	2012	0	0.0	0.0
	2013	0	0.0	0.0
	2014	0	0.0	0.0
	2015	0	0.0	0.0
	2016	0	0.0	0.0
	2017	7,800	65.5	14.0
	2018	0	0.0	0.0
	2019	0	0.0	0.0
Heavy-Duty Vehicles - Gasoline	1985-86	0	0.0	0.0
	1987	0	0.0	0.0
	1988-1989	0	0.0	0.0
	1990-1995	0	0.0	0.0
	1996	0	0.0	0.0
	1997	0	0.0	0.0
	1998	0	0.0	0.0
	1999	0	0.0	0.0
	2000	0	0.0	0.0
	2001	0	0.0	0.0
	2002	0	0.0	0.0
	2003	0	0.0	0.0
	2004	0	0.0	0.0
	2005	0	0.0	0.0
	2006	0	0.0	0.0
	2007	0	0.0	0.0
	2008	0	0.0	0.0
	2009	0	0.0	0.0
	2010	0	0.0	0.0
	2011	0	0.0	0.0
	2012	0	0.0	0.0
	2013	0	0.0	0.0
	2014	0	0.0	0.0
	2015	0	0.0	0.0
	2016	0	0.0	0.0
	2017	0	0.0	0.0
	2018	0	0.0	0.0
	2019	0	0.0	0.0
Motorcycles - Gasoline	1960-1995	0	0.0	0.0
	1996-2019	0	0.0	0.0

Total Organization-Wide On-Road Non-Gasoline Mobile Source Mileage and CH_4/N_2O Emissions

Vehicle Type	Fuel Type	Vehicle Year	Mileage (miles)	CH_4 (g)	N_2O (g)
Passenger Cars - Diesel	Diesel	1960-1982	0	0	0
		1983-2006	0	0	0
		2007-2019	0	0	0

Light-Duty Trucks - Diesel	Diesel	1960-1982	0	0	0
		1983-2006	0	0	0
		2007-2019	0	0	0
Medium- and Heavy-Duty Vehicles -	Diesel	1960-2006	0	0	0
		2007-2019	15,600	148	672
Light-Duty Cars	Methanol		0	0.0	0.0
	Ethanol		0	0.0	0.0
	CNG		0	0.0	0.0
	LPG		0	0.0	0.0
	Biodiesel		0	0.0	0.0
Light-Duty Trucks	Ethanol		0	0.0	0.0
	CNG		0	0.0	0.0
	LPG		0	0.0	0.0
	LNG		0	0.0	0.0
	Biodiesel		0	0.0	0.0
Medium-Duty Trucks	CNG		0	0.0	0.0
	LPG		0	0.0	0.0
	LNG		0	0.0	0.0
	Biodiesel		0	0.0	0.0
Heavy-Duty Trucks	Methanol		0	0.0	0.0
	Ethanol		0	0.0	0.0
	CNG		0	0.0	0.0
	LPG		0	0.0	0.0
	LNG		0	0.0	0.0
	Biodiesel		0	0.0	0.0
Buses	Methanol		0	0.0	0.0
	Ethanol		0	0.0	0.0
	CNG		0	0.0	0.0
	LPG		0	0.0	0.0
	LNG		0	0.0	0.0
	Biodiesel		0	0.0	0.0

Total Organization-Wide Non-Road Mobile Source Fuel Usage and CH_4/N_2O Emissions

Vehicle Type	Fuel Type	Fuel Usage (gallons)	CH_4 (g)	N_2O (g)
Ships and Boats	Residual Fuel Oil	-	-	-
	Gasoline (2 stroke)	-	-	-
	Gasoline (4 stroke)	-	-	-
	Diesel	-	-	-
Locomotives	Diesel	-	-	-
Aircraft	Jet Fuel	-	-	-
	Aviation Gasoline	-	-	-
Agricultural Equipment	Gasoline (2 stroke)	-	-	-
	Gasoline (4 stroke)	-	-	-
	Diesel	-	-	-
	LPG	-	-	-
Agricultural Offroad Trucks	Gasoline	-	-	-
	Diesel	-	-	-
Construction/Mining Equipment	Gasoline (2 stroke)	-	-	-
	Gasoline (4 stroke)	-	-	-
	Diesel	10,063	9,459	8,754
	LPG	-	-	-
Construction/Mining Offroad Trucks	Gasoline	-	-	-
	Diesel	-	-	-
Lawn and Garden Equipment	Gasoline (2 stroke)	-	-	-
	Gasoline (4 stroke)	-	-	-
	Diesel	-	-	-
	LPG	-	-	-
Airport Equipment	Gasoline	-	-	-
	Diesel	-	-	-
	LPG	-	-	-
Industrial/Commercial Equipment	Gasoline (2 stroke)	-	-	-
	Gasoline (4 stroke)	-	-	-
	Diesel	-	-	-
	LPG	-	-	-
Logging Equipment	Gasoline (2 stroke)	-	-	-
	Gasoline (4 stroke)	-	-	-
	Diesel	-	-	-
Railroad Equipment	Gasoline	-	-	-
	Diesel	-	-	-
	LPG	-	-	-
Recreational Equipment	Gasoline (2 stroke)	-	-	-
	Gasoline (4 stroke)	-	-	-
	Diesel	-	-	-
	LPG	-	-	-

Total CO_2 Equivalent Emissions (metric tons) - Mobile Sources	**130.9**
Total Biomass CO_2 Equivalent Emissions (metric tons) - Mobile Sources	**0.0**

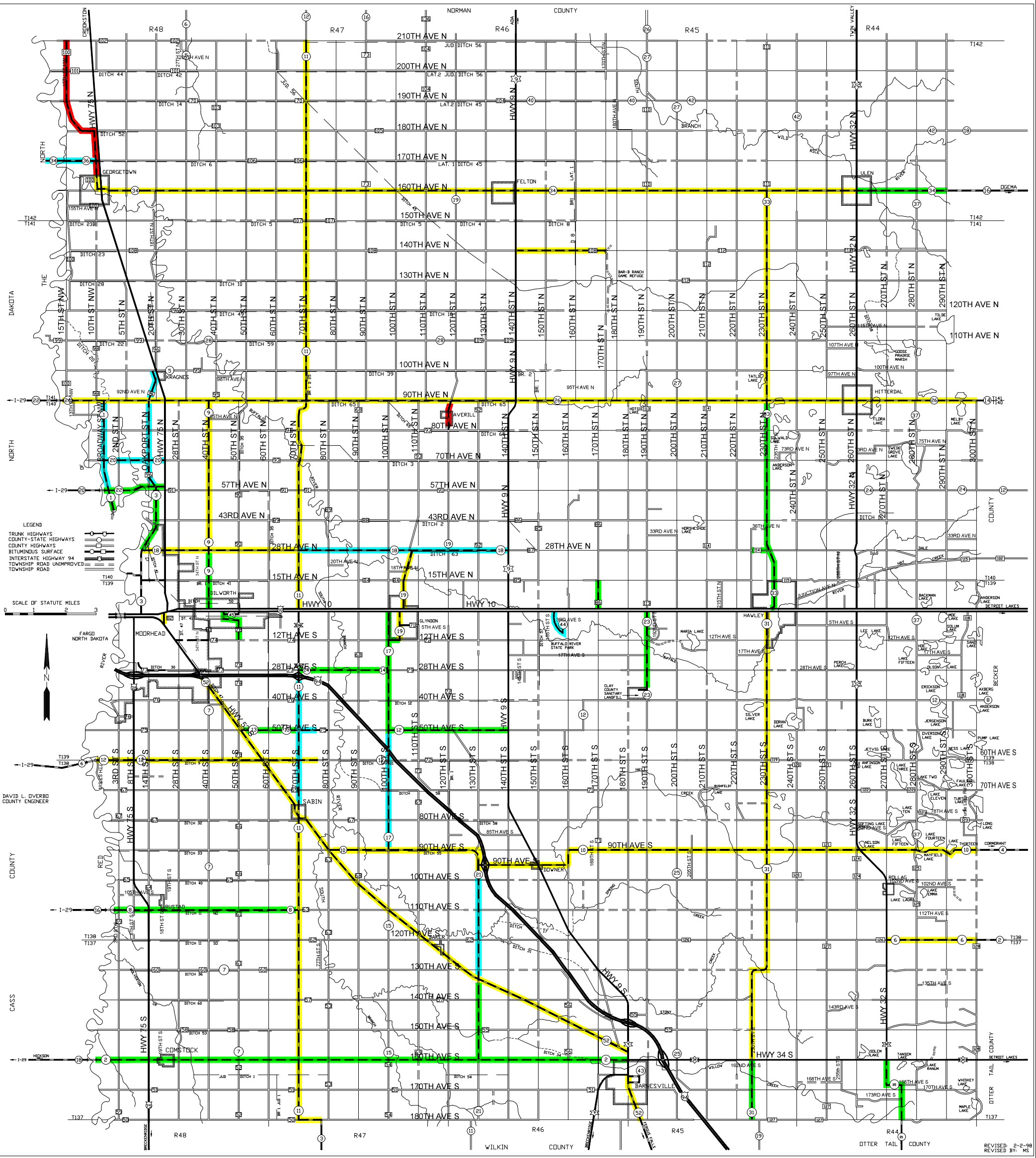
Notes:

1. Average mpg values from the U.S. Department of Transportation, Federal Highway Administration, Highway Statistics 2019 (December 2021), Table VM-1.

Appendix G

Clay County Seasonal Road Restrictions Map

2022 SPRING ROAD RESTRICTIONS
CLAY COUNTY MINN.



LEGEND

- 10 TON
- 9 TON
- 7 TON
- 5 TON

NOTE:

ALL GRAVEL ROADS 5 TON PER AXLE